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THE

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BY

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CLASS V.

CLASS V.

GENETICA.

DISEASES OF THE SEXUAL FUNCTION.

ORDER I.

CENOTICA.

AFFECTING THE FLUIDS.

II.

ORGASTICA.

AFFECTING THE ORGASM.

III.

CARPOTICA.

AFFECTING THE IMPREGNATION.

CLASS V.

PHYSIOLOGICAL PROEM.

Class V. Origin of classic name.

We now enter upon the maladies of that important function by which animal life is extended beyond the individual that possesses it, and propagated from generation to generation. To this division of diseases the author has given the classic name of GENETICA, from γείνομαι, "gignor", whence genesis (γένεσις), "origo", "ortus".

The diseases of the system hitherto scattered loosely over the entire class.

In almost every preceding system of nosology the diseases of this function are scattered through every division of the classification, and are rather to be found by accident, an index, or the aid of the memory, than by any clear methodical clue. Dr. Macbride's classification forms the only exception I am acquainted with; which, however, is rather an attempt at what may be accomplished, than the accomplishment itself. His division is into four orders; general and local, as proper to men, and general and local, as proper to women; thus giving us in the ordinal name little or no leading idea of the nature of the diseases which each subdivision is to include, or any strict line of division between them; for it must be obvious that many diseases commencing locally very soon become general, and affect the entire system, as obstructed menstruation; while others, as abortion, or morbid pregnancy, may be both general and local.

Macbride made an attempt at simplification; but an attempt alone.

Under the present system, therefore, a different arrangement is chosen, and one which will perhaps be found

Class V. Ordinal divisions under the present arrangement.

not only more strict to the limits of the respective orders, but more explanatory of the leading features of the various genera or species that are included under them. These orders are three: the first embracing those diseases that affect the sexual fluids; the second those that affect the orgasm; and the third those that affect the impregnation. To the first order is applied the term CENOTICA (κενώτικα) from κένωσις "evacuatio", "exinanitio", to the second, ORGASTICA (ὀργάστικα) from ὀργάζω, "irrito", "incito", and especially libidinosè; and to the third, CARPOTICA (καρπότικα) from καρπὸς, "fructus".

Survey of the general nature of the present function.

Before we enter upon these divisions, it will perhaps prove advantageous to pursue the plan we have hitherto followed upon commencing the preceding classes: and take a brief survey of the general nature of the function before us, under the following heads:

I. THE MACHINERY BY WHICH IT OPERATES.
II. THE PROCESS BY WHICH IT ACCOMPLISHES ITS ULTIMATE END.
III. THE DIFFICULTIES ACCOMPANYING THIS PROCESS WHICH STILL REMAIN TO BE EXPLAINED.

Machinery of the generative function.

I. One of the chief characters by which animals and vegetables are distinguished from minerals, is to be found in the mode of their formation or origin. While minerals are produced fortuitously or by the casual juxta-position of the different particles that enter into their make, animals and vegetables can only be produced by generation, by a system of organs contrived for this express purpose, and regulated by laws peculiar to itself.

Generation effected in two ways.

Generation is effected in two ways: by the medium of seeds or eggs, and by that of offsets: and it has been supposed that there may be a third way, to which we shall advert hereafter; that of the union of seminal molecules, furnished equally by the male and the female, without the intervention of eggs, which constitutes the leading principle of what has been called the theory of epigenesis.

Theory of epigenesis, what.

Many plants are propagable by offsets, and all plants are supposed to be so by eggs or seeds. As we descend

in the scale of animal life we meet in the lowest class, consisting of the worm tribes, with examples of both these modes of propagation also. For while a production by ova is more commonly adhered to, the hydra or polype is well known to multiply by bulbs or knobs thrown forth from different parts of the body, and the hirudo *viridis*, or green leech, by longitudinal sections, which correspond with the slips or suckers of plants.

Class V. I. Machinery of the generative function.

Plants propagable both by offsets and eggs or seeds.

In these cases we meet with no distinction of sex; the same individual being capable of continuing its own kind by a power of spontaneous generation. In other animals of the worm class we trace examples of the organs of both sexes united in the same individual, making a near approach to the class of monoicous plants, or those which bear male and female flowers distinct from each other but on the same stock, as the cucumber: thus constituting proper hermaphrodites, evincing a complexity of sexual structure which is not to be found in any class of animals above that of worms. Some of the intestinal worms are of this description, as the fasciola or fluke, which is at the same time oviparous, the ovaries being placed laterally.

The lowest class of animals propagable in both ways also.

Illustrated.

In these cases no distinction of sex.

In others of the same class examples of both male and female organs in the same individuals, as in monoicous plants.

Hence hermaphrodites.

Fasciola or fluke.

The helix *hortensis*, or garden-snail, is hermaphrodite, but incapable of breeding singly. In order to accomplish this, it is necessary that one individual should copulate with another, the male organ of each uniting with the female, and the female with the male, when both become impregnated. The manner in which this amour is conducted is singular and highly curious. They make their approach by discharging several small darts at each other, which are of a sharp form, and of a horny substance. The quiver is contained within a cavity on the right side of the neck, and the darts are launched with some degree of force, at about the distance of two inches, till the whole are exhausted: when the war of love is over and its consummation succeeds. The increase is by eggs which are perfectly round and about the size of small peas.

Helix hortensis or garden-snail.

Curious process of intercourse.

There are some animals in which a single impregnation is capable of producing several generations in succession: we have a familiar example of this in the common cock

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A single impregnation sufficient in some animals for the production of several generations in succession.

Aphis, puceron or green-plant louse.

Singular variety in the mode of production.

Some offspring viviparous, others oviparous.

Some winged, others wingless, and without distinction of sex.

Generative process among bees as discovered by the Hübers.

and hen; for a single copulation is here sufficient to give fecundity to as many eggs as will constitute a whole brood. But the same curious fact is still more obvious in various species of insects, and especially in the aphis (puceron or green-plant louse) through all its divisions, and the Daphnia *Pulex* of Möller and Latreille (the monoculus *Pulex* of Linnéus). In both these a single impregnation will suffice for at least six or seven generations; and in both these likewise, we have another curious deviation from the common laws of propagation, which is that in the warmer summer months the young are produced viviparously, and in the cooler autumnal months oviparously. It is also very extraordinary that in the aphis, and particularly in the viviparous broods, the offspring are many of them winged, and many of them without wings or distinction of sex: in this respect making an approach to the working-bees, and still more nearly to the working-ants, known, till of late, by the name of neuters.

For the generative process which takes place in these two last kinds we are almost entirely indebted to the nice and persevering labours of the elder and the younger Hüber; who have decidedly proved that what have hitherto been called neuters are females with undeveloped female organs, and therefore non-breeders; but whose organs, at least in the case of bees, are capable of developement by a more stimulating or richer honey, with which one of them, selected from the rest, is actually treated for this purpose by the general consent of the hive on the accidental loss of a queen-bee, or common bearer of the whole, and in order to supply her place. It is these alone that are armed with stings; for the males, or drones, as we commonly call them, are without stings; they are much larger than the non-breeders or workers, of a darker colour, and make a great bus in flying. They are always less numerous in a hive than the workers, and only serve to insure the impregnation of the few young queens that may be produced in the course of the season, and are regularly massacred by the stings of the workers in the beginning of the autumn. The impregnation of

the queen-bee is produced by a process too curious to be passed over. It was conjectured by Swammerdam that this was affected by an aura seminalis thrown forth from the body of the whole of the drones or males collectively. By other naturalists it has been said, but erroneously, to take place from an intermixture of a male milt or sperm with the eggs or spawn of the queen-bee, as in the case of fishes. M. Hüber, however, has sufficiently proved that the queen-bee for this purpose forms an actual coition, and this never in the hive, but during a tour into the air, which she takes for this purpose, a few days only after her birth, and in the course of which she is sure to meet with some one or other of her numerous seraglio of males. As soon as copulation has been effected she returns to the hive, which is usually in the space of about half an hour, and often bears home with her the full proofs of a connexion in the *ipsa verenda* of the drone; who thus wounded and deprived of his virility by the violence of his embrace, dies almost immediately afterwards. This single impregnation will serve to fecundate all the eggs the queen will lay for two years *at least*; Hüber believes for the whole of her life; but he has had repeated proofs of the former. She begins to lay her eggs, for the bee is unquestionably oviparous, forty-six hours after impregnation, and will commonly lay about three thousand in two months, or at the rate of fifty eggs daily. For the first eleven months she lays none but the eggs of workers; after which she commences a second laying which consists of drones' eggs alone.

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Of the mode of procreation among fishes, in consequence of their living in a different element from our own, we know but little. A few of them, as the squalus, or shark genus, some of the skates, and other cartilaginous fishes, have manifest organs of generation, and unquestionably copulate. The male shark, indeed, is furnished with a peculiar sort of holders for the purpose of maintaining his grasp upon the female amidst the utmost violence of the waves, and his penis is cartilaginous or horny. The female produces her young by eggs, which, in several species

Procreation among fishes.

Male organs in the squalus or shark.

Class V. I. Machinery of the generative function.

of this genus, are hatched in her own body, so that the young, when cast forth, are viviparous.

Young in some species of this genus produced viviparously.

The blenny produces its young in the same manner; in most species by spawn or eggs hatched externally, but in one or two viviparously, three or four hundred young being thus brought forth at a time.

Produced in the same manner in the blenny.

The blenny, however, and by far the greater number of fishes, have no external organ of generation, and appear to have no sexual connexion.

Fishes in general have no external sexual organs or sexual connexion.

The females, in a particular season of the year, seem merely to throw forth their ova, which we call hard roe or spawn, in immense multitudes, in some shallow part of the water in which they reside, where it may be best exposed to the vivific action of the sun's ray; when the male shortly afterwards passes over the spawn or hard roe, and discharges upon it his sperm, which we call soft roe or milt.

Ordinary mode of increase.

These substances are contained in the respective sexes in two bags that unite near the podex, and at spawning time are very much distended.

Spawn, or hard roe.

Sperm, milt or soft roe.

The spawn and milt thus discharged intermix; and, influenced by the vital warmth of the sun, commence a new action, the result of which is a shoal of young fishes of a definite species.

Still pairing observable in many kinds.

Yet though no actual connexion can be traced among the greater number of the class of fishes, something like pairing is often discernible among many of those that have

Illustrated.

no visible organs of copulation: for if we watch attentively the motions of such as are kept in ponds, we shall find the sexes in great tumult, and apparently struggling together among the grass or rushes at the brink of the water, about

Salmon.

spawning-time; while the male and female salmon, after having ascended a fresh stream to a sufficient height and shallowness for the purpose, are well known to unite in digging a nest or pit in the sand, of about eighteen inches in depth, into which the female casts her spawn, and the male immediately afterward ejects his milt; when the nest is covered over with fresh sand by a joint exertion of their tails.

Sturgeon.

The salmon, the sturgeon, and many other marine fishes, seek out a fresh-water stream for this purpose: and their navigations are often of very considerable length be-

fore they can satisfy themselves, or obtain a proper gravelly bed. The salmon tribe sometimes make a voyage of several hundred miles, cutting their way against the most rapid currents, leaping over floodgates, or up cataracts of an astonishing height: in their endeavour to surmount which they often fail, and tumble back into the water; and, in some places are, in consequence, caught in baskets placed in the current for this purpose.

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Dangers encountered at spawning time.

The power of fecundity in fishes surpasses all calculation, and appears almost incredible. A single herring, if suffered to multiply unmolested, and undiminished for twenty years, would show a progeny greater in bulk than the globe itself. This species, as also the pilchard, and some others of the genus clupea, as a proof of their great fertility, migrate annually from the Arctic regions in shoals of such vast extent, that for miles they are seen to darken the surface of the water.

Fecundity of fishes incalculable. Illustrated in the herring.

The mode of procreating among frogs does not much vary from that of fishes. Early in the spring the male is found upon the back of the female in close contact with her, but there is no discoverable communication, although this contact continues for several days; nor can we trace in the male any external genital organ. After the animals quit each other, the female seeks out some secure and shallow water, in which, like the race of fishes, she deposits her spawn, which consists of small specks held together in a sort of chain or string by a whitish glutinous liquor that envelopes them; and over this the male passes and deposits his sperm, which soon constitutes a part of the glutinous matter itself. The result is a fry of minute tadpoles, whose evolution into the very different form and organization of frogs, is one of the most striking curiosities of natural history. In the Surinam toad (rana *Pipa*) this process is varied. The female here deposits her eggs or spawn without any attention to order; the male takes up the amorphous mass with his feet and smears it over her back, driving many of the eggs hereby into a variety of cells that open upon it; and afterwards ejecting over them his spermous fluid. These cells are so many nests in

Singular procreation among frogs:

especially the toad of Surinam.

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which the eggs are hatched into tadpoles, which are perfected and burst their imprisonment in about three months.

But a volume would not suffice to point out all the singularities exhibited by different animals in the economy of procreation. It is worth while, however, to notice how variously some of the organs of generation are situated in many tribes. In the female libellula, or dragon-fly, the vagina is placed on the upper part of the belly near the breast. In the male spider, the generative organ is fixed on the extremity of an antenna. In the female ascaris *vermicularis*, or maw-worm, the young are discharged from a minute punctiform aperture a little below the head, which appears, therefore, to constitute the ascarine vagina. In the snail we find this organ placed near the neck, in the immediate vicinity of the spiracle which serves for its lungs. The tænia *Solium*, or tape-worm, throws forth its young from the joints. So some plants bear flowers on the petioles or edges of the leaves instead of on the flower-stalk.

Singular position of the organs of generation in many tribes.
Libellula, or dragon-fly.
Male spider.
Ascaris vermicularis, or maw-worm.
Snail.
Tænia Solium, or tape-worm:
as in some plants.

In like manner, while the mammæ in the human kind are placed on the chest, and made a graceful and attractive ornament, in all quadrupeds they are placed backward, and concealed by the thighs. In the mare, the teats, which are two, are inguinal; in the horse, they are singularly placed on the glans penis.

Mammæ in quadrupeds.
Teats in the mare inguinal.
Where placed in the horse.

The testes of most animals that possess this organ, and procreate only once a year, are extremely small during the months in which they are not excited. Those of the sparrow, in the winter-season, are scarcely larger than a pin's head, but in the spring are of the size of a hazelnut. In man this organ, before birth, or rather during the early months of pregnancy, is an abdominal viscus: about the seventh month it descends gradually through the abdominal ring into the scrotum, which it reaches in the eighth month. And if this descent do not take place anterior to birth, it is accomplished with difficulty, and is rarely completed till the seventh or eighth year. Sometimes, indeed, only one testis descends under these circumstances, and occasionally neither.

Testes very small, when unemployed, in animals that procreate only once a year.
Illustrated in the sparrow.
Original seat and progress in man.

There is a set of barbarians at the back of the Cape of

Class V. I. Machinery of the generative function.

Good Hope who appear to be very generally monorchid, or possessed of only a single testis; and Linnéus, believing this to be a natural and tribual defect, has made them a distinct variety of the human species. Mr. Barrow has noticed the same singularity: but it is doubtful whether, like the want of a beard among the American savages, this destitution is not owing to a barbarous custom of extirpation in early life. It is generally admitted that the productive power of man is greatly impaired, if not totally lost, by a retention of both testes in the abdomen, as in this situation they are seldom completely developed. Mr. Hunter imagines never; and Zacchias and Riolan concur with him. Mr. Wilson met with one case of this kind in which the generative power was perfect: and M. Foderé boldly affirms that persons thus incompletely formed are most remarkable for their vigour, thus strangely impeaching the ordinary course of nature. Yet in the erinaceus or hedge-hog genus, and a few other quadrupeds, they never quit the cavity of the abdomen. In the cock, whose penis is dichotomous or two-pronged, they are situated on each side of the back-bone.

Whether tribes naturally monorchid.

Productive power of man impaired by a retention of the testes in the abdomen.

Yet in the erinaceus or hedge-hog never quits the abdomen.

Where seated in the cock.

It has been made a question among physiologists whether the seminal fluid is secreted by the testes at the moment of the demand, or gradually and imperceptibly in the intervals of copulation, and lodged in the vesiculæ seminales as a reservoir for the generative power to draw upon. The latter is a common opinion. It is, however, opposed, and with very powerful arguments, by Swammerdam and Mr. John Hunter. The secretion found in the vesiculæ seminales, is different from that of the testes in the properties of colour and smell; those of the former being yellow and inodorous, those of the latter whitish, and possessing the odour of the orchis-root, or the down of chestnuts. On the dissection of those who have naturally or accidentally been destitute of one testis, the vesicula of the one side has been found filled with the same fluid, and as largely as that of the other; and consequently the fluid on the vacant side must have been supplied by a secretory action of the vesicula itself. There are no organs of genera-

Seminal fluid whether secreted by the testes at the moment of demand; or imperceptibly and gradually deposited in the vesiculæ seminales.

The latter the common opinion: but opposed by Swammerdam and J. Hunter.

On what grounds opposed.

Class V. I. Machinery of the generative function.

tion that differ so much in their form and comparative size in different animals as these vesicular bags: in the hedge-hog they are twice as large as in man, and in many animals they are utterly wanting. They are so in the dog, which continues for a very long time in a state of copulation, and in birds, whose copulation is momentary. They are, moreover, wanting in most animals whose food is chiefly derived from an animal source, though not in all, as the hedge-hog, to which I have just referred, is an example of the contrary.

Vesiculæ seminales differ widely in form and size in different animals. Hedge-hog. Domestic dog. Birds.

Hence supposed by J. Hunter to be glands secreting a fluid distinct from semen.

Mr. Hunter hence concludes that the vesiculæ seminales are not seminal reservoirs but glands secreting a peculiar mucus, and that the bulb of the urethra is, properly speaking, the receptacle in which the semen is accumulated previous to ejection. Of the actual use of these vesicular bags, he confesses himself to be ignorant, yet imagines that in some way or other they are subservient to the purposes of generation, though not according to the common conjecture.

Uterus and vagina sometimes double.

In a few rare instances the uterus and vagina are said to been found double. Dr. Tiedemann informs us that he has met with two instances of this monstrosity. The organs constituting one of the cases are preserved to this day in the Heidelberg Museum. The individual had been pregnant in one of the sets, and the uterus is here larger than on the opposite side which is of the ordinary size. The woman reached her full time, but died nineteen days after delivery.

Ovaria: formerly called female testes. How connected with the uterus.

The ovaria are to the female what the testes are to the male. They were formerly, indeed, called female testes, and furnish, on the part of the female, what is necessary towards the production of a progeny. They are, in fact, two spheroidal flattened bodies, inclosed between the folds of the broad ligaments by which the uterus is suspended. They have no immediate connexion with the uterus; but near them the extremity of a tube, which opens on either side into that organ, hangs with loose fimbriæ in the cavity of the abdomen, into which it communicataes the fimbrial end. This tube is called the Fallopian from the name of its

Fallopian tube.

discoverer*. At the age of puberty, the ovaria acquire their full growth, and continue to weigh about a drachm and a half each till menstruation ceases. They contain a peculiar fluid resembling the white of eggs, once supposed to be secreted by the glandular structure of various small bodies imbedded in them, which have been denominated corpora lutea. By some early writers this fluid was contemplated as a female semen, forming a counterpart to the semen of males; but it has since been held, and the tenet is well supported by anatomical facts, to be a secretion of a different kind, thrown forth in consequence of the excitement sustained by the separation of one or more of the minute vesicles, which seem to issue from them as their nucleus or matrix, and which are themselves regarded by the same school as the real ovula of subsequent fetuses: to which subject, however, we shall advert presently.

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Corpora lutea, what. The secretion of these organs, of what nature.

Vesicles ovula of the ovaries.

It is singular to contemplate the very powerful influence which the secretion, or even the preparation for secreting the seminal fluid, but still more its ejection, produces over the entire system.

Powerful influence of the seminal fluid on the animal economy.

On the perfection, and a certain and entonous degree of distention, of the natural vessels, apparently producing an absorption of the fluid when at rest, the spirits, the vigour, and the general health of man depend. Hence, antecedently to the full elaboration of the sexual system, and the secretion of this fluid, the male has scarcely any distinctive character from the female: the face is fair and beardless, the voice shrill, and the courage doubtful. And whenever in subsequent life, we find this entonous distention relaxed, we find at the same time languor, debility, and a want of energy both in the corporeal and mental functions. And where the supply is entirely suppressed or cut off by accident, disease, or unnatural mutilation, the whole system is changed, the voice weakened, the beard checked in its growth, and the sternum expanded: so that the male again sinks down into the female cha-

Illustrated.

* Fallop. Observ. Anat. 197.

Class V. I. Machinery of the generative function.

racter. These changes occur chiefly where the testicles are extirpated before manhood; but they take place also, though in a less degree, afterwards.

Effects from its discharge: in the stoutest animals: in the feeblest: in the stoutest plants: in feebler plants.

In like manner, during the discharge of the seminal fluid in sexual commerce, the most vigorous frames of the stoutest animals become exhausted by the pleasurable shock: and the feeble frames of many of the insect tribes are incapable of recovering from the exhaustion, and perish immediately afterwards; the female alone surviving to give maturity to the eggs hereby fecundated. The same effect occurs after the same consummation in plants. The stoutest tree, if superfructified, is impaired for bearing fruit the next year; while the plants of the feeblest structure die as soon as fructification has taken place. Hence, by preventing fructification, we are enabled to prolong their duration; for by taking away the styles and stigmas, the filaments and anthers, and especially by plucking off the entire corols of our garden-flowers, we are able of annuals to make biennials, and of biennials triennials.

Aroma in some animals peculiarly strong in the breeding season, and flesh not eatable. A like effect in fishes. Singular exhaustion in stags.

In many animals during the season of their amours, the aroma of the seminal fluid is so strong, and at the same time so extensive in its influence as to taint the flesh; and hence the flesh of goats at this period is not eatable. Most fishes are extremely emaciated in both sexes at the same time, and from the same cause, and are equally unfit for the table. Stags, in the rutting season, are so exhausted as to be quite lean and feeble, and to retire into the recesses of the forest in quest of repose and quiet. They are well known to be totally inadequate to the chace; and hence, for the purpose of maintaining a succession of sporting, they are sometimes castrated, in which state they are called heaviers. If the castration be performed while the horns are shed, these never grow again; and, if while the horns are in perfection, they are never shed.

Horns never grow again if castration be performed while they are shed.

Peculiar economy in the rein-deer.

The male and female rein-deer (cervus *Tarandus*) ordinarily cast their horns every year in November. If the male be castrated, the horns will not grow after he is nine years old; and the female, instead of dropping her

horns as usual in November, retains them, if gravid, till she fawns, which is about the middle of May. In this case the usual stimulus necessary for the operation of exfoliation is transferred to another part of the system. And for the same reason we often find that a broken bone in a pregnant woman will secrete no callus, and consequently not unite, till after child-birth. In the former case the roots of the horns are affected by sympathy with the general sexual system, of which, indeed, they may be said to form a part, and by their superior size are discriminative of the male sex. In the human race, the strong deep voice, characteristic of manhood, is rarely acquired, if castration be performed in infancy.

CLASS V. I Machinery of the generative function.

Explained by analogy.

There is no animal, perhaps, but shows some sympathetic action of the system at large, or some remote part of it, with the genital organs, when they are in a state of peculiar excitement. The tree-frog (rana *arborea*) has, in the breeding season, a peculiar-orbicular pouch attached to its throat; the fore-thumb of the common male toad is at the same season affected with warts: and the females of some of the monkey tribes evince a regular menstruation.

Association of the general system with the sexual when in a state of excitement. Illustrated in the tree-frog: common male-toad: monkey tribes.

II. The process by which the generative power is able to accomplish its ultimate end, is to the present hour involved in no small degree of mystery; and has given rise to three distinct and highly ingenious hypotheses that have a strong claim upon our attention, and which we shall proceed to notice in the order in which they have appeared.

II. Generative process. Involved in mystery: but has given rise to three popular hypotheses as follow:

The first and most ancient of these consists in regarding the fetus in the womb as the joint production of matter afforded in coition by both sexes, that of the male being secreted by the testes, and that of the female by the uterus itself, or some collateral organ, as the ovaria, which last, however, is a name of comparatively modern origin, and derived from a supposed office which was not contemplated among the ancients. To this hypothesis has been given the name of EPIGENESIS.

Fetus produced by the intermixture of a male and female seminal fluid: forming the theory of epigenesis:

The seed or matter afforded by the female was regarded

Female generative

Class V. II. Generative process. matter how explained by Hippocrates and Aristotle, as distinct from male semen.

by Hippocrates, Aristotle, and Galen, as the menstrual blood or secretion, which they supposed furnished the substance and increment of the fetus, while the male semen furnished the living principle: Empedocles, Epicurus, and various other physiologists contending, on the contrary, that the father and mother respectively contributed a seminal fluid that equally co-operated in the generation and growth of the fetus, and stamped it a male or a female, and with features more closely resembling the one or the other according as the orgasm of either was predominant at the time, or accompanied with a more copious discharge. In the words of Lucretius who has elegantly compressed the Epicurean doctrine:

How explained by Empedocles and Epicurus.

Sex and features how accounted for.

> Et muliebre oritur patrio de semine seclum;
> Maternoque mares exsistunt corpore cretei.
> Semper enim partus duplici de semine constat:
> Atque, utri simile est magis id, quodquomque creatur,
> Ejus habet plus parte æquâ, quod cernere possis,
> Sive virûm suboles, sive est muliebris origo*.

Sex and features how accounted for by Hippocrates and Aristotle.

The distinction of sex, however, was accounted for in a different manner by Hippocrates, who supposed that each of the sexes possesses a strong and a weak seminal fluid; and very ungallantly asserted that the male fetus was formed by an intermixture of the robuster fluids of the two sexes, and the female by that of the more imbecile.

Commentary of Lactantius upon Aristotle's opinion.

Lactantius, in quoting the opinion of Aristotle upon this subject, adds, fancifully enough, that the right side of the uterus is the proper chamber of the male fetus, and the left of the female: a belief which is still prevalent among the vulgar in many parts of Great Britain. But he adds that if the male, or stronger, semen should by mistake enter the left side of the uterus, a male child may still be conceived; yet, inasmuch as it occupies the female department, its voice, its face, and its general complexion will be effeminate. And, on the contrary, if the weaker, or female, seed should flow into the right side of the uterus and a female fetus be begotten, the female will exhibit

* De Rer. Nat. Lib. IV. 1220.

many signs of a masculine character, and be inordinately vigorous and muscular *.

Class V. II. Generative process. The one or other of these doctrines popular till the sixteenth century: at which time the ovaria instead of testes, were regarded as depositories of minute ova: and hence named ovaria. Hence another hypothesis which derives the rudiments of the fetus from the mother alone. This hypothesis illustrated.

The doctrine of epigenesis under one modification or another, continued to be the leading, if not the only hypothesis of the day till the beginning of the sixteenth century, when, in consequence of the more accurate examinations and dissections of Sylvius, Vesalius, Fallopius, and De Graaf, the organs which had hitherto been regarded as female testes, and so denominated, were now declared to be repositories of minute ova, and at length named ovaria by Steno in 1667†. We now therefore enter upon the second of the three hypotheses above alluded to, which derives the fetus from rudiments furnished by the mother alone. This hypothesis was originally advanced by Josephus de Aromatariis, as flowing from these anatomical discoveries, but was chiefly brought into notice by Swammerdam and Harvey, who established the doctrine of *omne ab ovo*. Observing a cluster of about fifteen vesicles in each of the female ovaria, apparently filled with a minute drop of albuminous yellow serum, and perceiving that they appeared to diminish in number in some kind of proportion to the number of parturitions a woman had undergone, it was conceived by these physiologists that such vesicles are inert eggs or ovula, containing miniature embryons of the form to be afterwards evolved, one of which, by the pleasurable shock that darts over the whole body, but in an especial degree through this organ, during the act of copulation, is instantly thrown into a state of vital activity, detached from the common cluster, and in a short time passes into the uterus through the canal of the Fallopian tube which spontaneously enlarges for the purpose; where its miniature germ is gradually unfolded and augmented into a sensible fetus, partaking of the form and figure of the parent stock. The elementary animalcule, it was farther asserted by Harvey, may be occasionally impressed with a resemblance in its features to the father

* De Opificio Dei. Cap. XII.

† Elem. Myologiæ Specimen. p. 117.

CLASS V. II. Generative process.

Features of the father accounted for by the shock given to the female system during the embrace: it being denied that the male semen could ever reach the uterus or add any thing to the embryon in its evolution.

The contrary asserted by Leewenhoeck and Hartsoeker: who contended that it could even enter the Fallopian tube, and actually did so.

Extreme and most absurd consequences drawn from both hypotheses: the supporters of the one contending that the father had no immediate connexion with his own child: while those of the other affirmed that the whole was the

from the electric impulse given in the genial act to every portion of the solids and fluids of the body, and of consequence to the fluid contained in the ovula themselves: but, reasoning from the length of the vagina in cows and many other animals, and an occasional dissection of the human subject soon after coition, he contended that the male semen never did, nor indeed could, enter the uterus, and of course could not add any thing to the embryon in its evolution.

Leewenhoeck and Hartsoeker, however, upon a more accurate anatomy of the uterus immediately after copulation, discovered not only that the projected male semen could enter its cavity, but actually did thus enter, and in some instances, which fell within their notice, had clearly ascended into the Fallopian tubes. And now a new doctrine was started, and one altogether opposite to the theory of Harvey. Upon the principle of the former, the father had no immediate connexion with his own child; he could not bestow upon it a particle of his own matter, and the whole production was the operation of the mother. But, in consequence of this later discovery, it was contended that the entire formation was the work of the father, and that the mother, in her turn, had nothing to do with it: that every particle of the propelled fluid was a true and proper seminium, containing in itself, like the ovulum of the female upon the hypothesis of Harvey, a miniature of all the organs and members of the future fetus, in due time to be gradually evolved and augmented; and that the uterus, and possibly the ovulum, into which some one of these male semina or seminia is almost sure of being protruded in the act of generation, offers nothing more than a nest in which the homunculus or rudimental fetus is deposited for warmth and nutriment. And as the former hypothesis appealed to the natural economy of oviparous animals during the period of incubation, that of worms and tadpoles was appealed to by the latter: and a very considerable degree of life and motion was supposed to be discovered and proved by the aid of good magnifying glasses in the simple fluid of the male semen, insomuch that not

less than many millions of these homunculi, or unborn manikins, were pointed out as capering in a diameter not greater than that of the smallest grain of sand, each resembling the tadpole in shape. Delappius, indeed, a celebrated pupil of Leewenhoeck advanced farther; for he not only saw these homuncular tadpoles, but pretended to trace one of them bursting through the tunic by which it was swaddled, and exhibiting two arms, two legs, a human head and heart.

Such was the dream of the popular philosophy on the subject of generation indulged in at the period we are now adverting to, and which continued for upwards of a century. It is truly astonishing to reflect on the universality with which this opinion was accredited, and how decisively every anatomist, and indeed every man who pretended to the smallest portion of medical science, was convinced that his children were no more related, in point of generative power, to his own wife than they were to his neighbour's. It was in vain that Verheyen denied the existence of animalcules in the seminal fluid, and undertook to demonstrate that the motion supposed to be traced there, was a mere microscopic delusion: it was in vain to adduce the fact of an equal proportion of paternal and maternal features in almost every family in the world, the undeviating intermixture of features in mules, and other hybrid animals, and the casual transfer of maternal impressions to the unborn progeny when suddenly frightened in the earlier months of pregnancy. The theory, as it was triumphantly called, of generation ab animalculo maris, was still confidently maintained; and the mother, it was contended, had nothing to do with the formation of her own offspring, but to give it a warm nest and nourishment.

At length arose the celebrated and indefatigable Buffon, who was not inattentive to the facts before him, nor to the absurdities to which some of them had led. He readily accredited the microscopic motion pointed out by Leewenhoeck in the floating bodies of male semen, and which

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work of the father, and the mother has nothing more to do with it than to furnish a nest.

Appeals to natural history made by both parties.

Homunculi semine masculino.

Farther extravagances of the same hypothesis.

General remarks.

Hypothesis of Buffon forming a re-edition of the hypothesis of epigenesis.

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Organic molecules what.

Spalanzani has since persuaded himself he has detected not only in this fluid but in various others of an animal origin*; but instead of admitting them to be animalcules, he regarded them as primordial monads, *molecules organiques*, of a peculiar activity, existing through all nature, and constituting the nutrient elements of living matter: and upon this principle he founded not indeed a new hypothesis, but a new edition of that of epigenesis, with so much accessary, and, in his view of the subject, important matter, as very nearly to entitle it to the character of an original plan. Like the speculations to which it succeeded, it soon acquired a very high degree of popularity.

Explained.

All organized beings, and hence plants as well as animals, according to the doctrine of M. de Buffon, contain a vast number of these active molecules in every part of their frames, but especially in the generative organs of both sexes, and the seed-vessels of plants, in which they are more numerous than in any other parts. These organic primordia afford nutrition and growth to the animal and vegetable fabrics; and, as soon as these fabrics are matured, and consequently a smaller proportion of such molecules are requisite, their surplus is secreted and strained off for the formation of vegetable and animal seeds. The existence of ovula, in the female ovaria, impregnated and detached at the time of conception, is by this hypothesis declared to be a chimæra, and their passage into the uterus asserted to be contrary to all observation and fact. The ovaria are once more regarded as female testes receiving, like those of the male, the surplus of the organic molecules of the body, and secreting them, like the latter, for the common purpose of generation. The seminal liquor thus secerned in the male and female frames are, in the act of coition, projected simultaneously into the uterus, and, becoming intimately blended there, produce, by a kind of fermentation, the first filaments of the fetus, which grow and expand like the filaments of plants. To render such

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* Opuscoli di Fisica, Animale, Vegitabile, &c. Vol. 2, 8vo. Milan. 1776.

combination of seminal fluids productive, however, it was contended that their quantities must be duly proportioned, their powers of action definite, and their solidity, tenacity, or rarefaction symphoneous; and the fetus, it was added, would be either male or female, as the seminal fluid of the man or woman abounded most with organic molecules, and would resemble either the father or the mother, according to the overbalance of the respective elements contributed by each parent.

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Sex and features how accounted for by Buffon.

It is obvious, from this brief view of the subject, that Buffon in the planning of this hypothesis did nothing more than avail himself of the anatomical facts of Vesalius, De Graaf, and Harvey, and the supposed discoveries of Leewenhoeck, to revive in a new form the doctrine of the Greek schools, and especially that of Epicurus. The subject, however, was offered to the world in plausible arguments and captivating eloquence, and had soon the good fortune to meet with powerful and enlightened supporters in Maupertuis and Needham, who added some improvements, but of no very great importance, to several of M. de Buffon's tenets; while Haller and Bonet strove hard to revive the hypothesis of a female generative power or that of evolution alone, as first established by Harvey; or rather to erect an edifice, somewhat similar to it, out of the crumbling ruins of the primary building; in doing which they appealed to the phænomena of the vegetable creation with considerable research and some degree of of success. But this revived hypothesis, notwithstanding, has never been very generally followed; and is now almost, if not altogether, relinquished even in Germany.

General remarks.

Buffon supported by Maupertuis and Needham:

opposed by Haller and Bonet, who endeavoured to revive under a new form the hypothesis of female evolution: but with little success.

In like manner, there are several physiologists, who have endeavoured to improve upon the hypothesis of Buffon, of whom it may be sufficient to mention Dr. Darwin and Professor Blumenbach. The alterations, however, are little more than verbal, and consequently of no great importance, and chiefly relate to the subordinate doctrine of organic molecules. For the term organic molecules Darwin prefers that of vital germs, which he assorts into two kinds, or rather maintains are thus formed

Attempted improvements upon Buffon:

by Blumenbach and Darwin.

Darwin's modification.

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by nature, as being secreted or provided by male or female organs, whether animal or vegetable; for in the philosophy of this writer, the two departments tread closely upon each other. In this subdivision of germs, however, the term molecule is still retained, but limited to the female character or department: the vital germs or particles secreted by the female organs of a bud or flower, or the female organs of an animal, being by Dr. Darwin denominated *molecules* with formative propensities; while those secreted from the male organs of either department are called *fibrils* with formative appetencies. To the fibrils he assigns a higher degree of organization than to the molecules. Both, however, we are told, have a propension or an appetency to form or create; as we are told also that "they reciprocally stimulate and embrace each other and instantly coalesce; and may thus popularly be compared to the double affinities of chemistry."

Vital germs what.

Molecules with formative propensities, what.

Fibrils with formative appetites what.

Blumenbach's modification.

In the view of Professor Blumenbach, matter is divided into two kinds, possessing properties essentially different from each other, these are organized and unorganized: unorganized matter is endued with a creative or formative power throughout every particle; and organized matter with a creative or formative effort, a *nisus formativus*, or *bildungstrieb**, as he calls it, a principle in many respects similar to that of gravitation, but endowing every separate organ, as soon as it acquires structure, with a vita propria. From the first he traces the origin of the world in the simple and inorganic state of the mineral kingdom; from the last the rise of vegetables and animals.

Organized and unorganized matter.

Nisus formativus or bildungstrieb what.

Remarks of Hunter.

It is only necessary to add farther a remark of Mr. John Hunter's, that in plants of all kinds, the seed, properly so called, is produced by the female organization, while the male gives nothing more than the principle of arrangement; and that the same operation and principles take place in many orders of animals.†

Much philosophical trifling in these speculations.

In all these attempts to improve upon the older specu-

* Uber den Bildungstrieb, 8vo. Götting. 1791.

† Animal Economy, p. 55.

lations, there is a great deal that cannot but be regarded as philosophical nugæ. The physiological experiments that have been made, and the anatomical facts that have been discovered, since the days of Harvey, and particularly during the last half century, though they leave the doctrine of generation still surrounded with many difficulties, have sufficiently established the following positions:

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Positions sufficiently established by the facts and discoveries ascertained.

First that, in all ordinary cases, the male semen enters into the uterus at the time of coition; and that in those cases in which it does not or cannot enter immediately, from the extreme length of the vagina, as in some quadrupeds, or from a greater or less degree of imperforation of the vaginal passage, it is conveyed there soon afterwards in consequence of its proximity of situation.

First, male semen communicated to the uterus at first or soon afterwards.

Secondly, that the uterus itself, worked up at this time to the highest pitch of excitement, secretes also some portion of a peculiar fluid, the female semen of the Epicurean philosophers, with which the male semen combines, and which is probably the basis of the membranes soon afterwards prepared for the fetus.

Secondly, the uterus also secretes a peculiar fluid, probably the basis of the subsequent membranes.

Thirdly, that the Fallopian tubes at this period become rigid; their fimbriæ embrace the ovaria; and consequently form a direct channel of communication between the ovaria and the uterus; that what were formerly supposed to be vesicles are real ovula; and that one of them, detached by the momentary shock or excitement, bursts from its nucleus or matrix, enters into one of the open mouths of the fimbriæ of the Fallopian tube, and in consequence, into the tube itself, by which it is conveyed to the uterus; an effect, however, which does not seem to take place during the act of coition, since the ovulum is seldom found, even in the Fallopian tube, till some time afterwards: and that, as soon as the ovulum has thus escaped, the lips of the wound hereby made in the side of the ovary are closed by an external cicatrix, and indented with a small cavity, which forms what is meant by a corpus luteum.

Thirdly, Fallopian tubes a medium of communication between the uterus and the ovaries: the supposed vesicles of the latter real ovula, conveyed by this medium to the uterus.

Fourthly, that the cervix of the uterus is, from this time, closed in its canal toward its upper part, so as to prevent a second fetation by the introduction of fresh male semen;

Fourthly, the cervix of the uterus

Class V. II. Generative process. from this time becomes closed, so that no second fetation can take place.

while the internal surface of this organ becomes lined with a fine coagulable and plastic lymph, being probably the fluid secreted at the moment of intercourse, which assumes a thin membranous form, and has been called tunica caduca or decidua, and constitutes the uterine ovum or egg of the fetus; this important part of the process seeming to take place about a week after the time of copulation. In the rabbit Mr. Cruikshank has found it as early as the fourth day.

Formation of caduca; or uterine ovum completed in about a week after sexual intercourse.

Fifthly, formation of other associate membranes.

Fifthly, that, for the better protection and nutrition of the fetus, the walls of the uterine ovum are multiplied; and that hence, while the tunica caduca itself possesses a duplicature, which is called tunica reflexa, there are also two other membranes by which the decidua is lined, denominated chorion and amnion, both which are filled with peculiar fluids; the fluid of the chorion occupying the space between itself and the amnion which it surrounds; and the fluid of the amnion occupying the whole of the interior which is distended with it like a bladder.

Sixthly, the medium of connexion between the child and the mother the umbilical chord and placenta.

Sixthly, that the medium of connexion between the fetus and the mother is the umbilical chord and the placenta into which it is distributed; the former consisting of an artery from each of the fetal iliacs, and a vein running to the fetal liver, twisted spirally and surrounded by a common integument; and the latter consisting of two parts, an uterine or spongy parenchyma, derived from the decidua, and a fetal parenchyma consisting of a great multitude of exquisitely beautiful knotty flocculi that cover the chorion, and constitute not only an organ of nutriment, but, as was first ingeniously supposed by Sir Edward Hulse, of oxygenation.

Seventhly, the first vestige of the embryon visible about the third week after impregnation, and its shape reniform.

Seventhly, that about the third week, or as soon as the uterine ovum is thus prepared for its reception, we can trace the first vestige of the embryon, oval in its shape and resembling a minute bean or kidney, swimming in the fluid of the amnion, and suspended by the umbilical chord which has now shot forth from the placenta. From this reniform substance the general figure pullulates, the limbs are protruded, and the face takes its rise.

III. The chief difficulties that have been felt as accompanying these positions and the general doctrine that flows from them, are the following: Class V. III. Difficulties that are felt to accompany the above positions.

Firstly, as to the mode by which the male semen is conveyed to the ovulum in the Fallopian tube.

Secondly, the occasional existence of corpora lutea in the ovaria of virgins, or of those who, from misformation, have been incapable of indulging in sexual commerce.

Thirdly, the occasional detection of a full-sized fetus in the uterus without any placenta, umbilical chord, or mark of an umbilicus.

The first of these difficulties was earliest started, as we have already observed, by Dr. Harvey, who contended that in the case of cows, whose vagina is very long, as well as in various other cases, the semen cannot possibly reach even the uterus; and that hence there is no reason to suppose it ever reaches it. It was not then known that impregnation commences in the Fallopian tube, and that it must also reach this canal as well; which, by Harvey would have been received as an objection still more triumphant. First difficulty, that of the ascent of the male semen to the ovum.

By what means the ejected semen is conveyed into the uterus, we do not, indeed, very clearly know even to the present hour; but that it is so conveyed and even in animals in which the male organ can by no means come in contact with it, has been proved by incontrovertible facts. Mr. John Hunter killed a bitch in the act of copulation, and found that the semen was then existing in the cavity of the uterus, in his opinion carried there per saltum. Now if it reach the uterus there can be no difficulty in conceiving that it may also reach the Fallopian tubes, which by one end open into the uterus; sucked in, perhaps, as supposed by M. Blumenbach, by the latter organ during the thrilling orgasm of the moment. Leewenhoeck and Hartsoeker seem, indeed, to have removed the difficulty altogether, by having, in some instances, detected the seminal fluid in the Fallopian tubes themselves. And there seems great reason to believe that it has, occasionally, entered the ovarium, and even produced im- Examined and replied to. Proofs that the semen has some-

CLASS V. III. Difficulties accompanying the subject of generation.

pregnation in that organ instead of in the uterus, where an obstruction has been offered to the descent of an ovulum into the fimbrial openings of the tube, after its detachment: for we cannot otherwise readily account for the formation of fetuses in the ovarium; facts, however, well known to occur, and of which Mr. Stanley has given a singular instance of late *, and Dr. Granville a still more extraordinary example, the last fetus at its examination appearing perfect, and four months old †.

times ascended even to the ovarium.

Second difficulty.

The second difficulty is also capable of a plausible answer, but not quite so satisfactory as the preceding:

Examined and replied to.

There can be no doubt that the ovarium is directly concerned in the great business of generation: for it is well known that the operation of spaying or excising the ovaries corresponds in females to that of castration in males. It takes off, not only all power of production, but all desire. And, in a recent volume of the Philosophical Transactions, there is the case of a natural defect of this kind in an adult woman, who, in like manner, had never evinced any inclination for sexual union, and had never menstruated: and who on dissection was found, with the deficiency of ovaria, to have the uterus only of the size of an infant's, a very narrow pelvis, and no hair on the pubes ‡.

It seems, also, perfectly clear that in conception an ovum does really descend from the ovarium into the uterus within a few days after sexual intercourse has taken place: in proof of which it will be sufficient to quote the following curious historical fact from Sir Everard Home §, who appears to have traced its path very accurately: "A servant maid, twenty-one years of age, died of an epileptic fit seven days after coition, there being circumstances to prove that she could not have seen her lover after the day here adverted to, nor for many days before. The sexual organs were submitted to dissection: the right ovarium had a small torn orifice upon the most prominent part of its

Case in exemplification, from Home.

* Med. Trans. Vol. VI. Art. XVI.
† Phil. Trans. 1820. p. 101.
‡ Vol. for the year 1805. p. 226.
§ Id. 1817. p. 252.

external surface, which led to a cavity filled with coagulated blood, and surrounded by a yellowish organized structure: its inner surface was covered with an exudation of coagulable lymph. A minute spherical body, supposed to be an ovum, was concealed in the cavity of the womb among the long fibres of coagulable lymph which covered its inner surface, and especially towards the cervix. This supposed ovum was submitted to the microscopical powers of M. Bauer, who has made various drawings of it, and who detected in it two projecting points which are considered as the future situations of the heart and brain."

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What exact period of time the ovum demands to work its way down the tube into the uterus, has not been very accurately ascertained. That it does not descend at once is admitted on all hands: and there can be no doubt that in different kinds of animals a different period is requisite. Mr. Cruikshank, whose experiments were confined to rabbits, ascertained that in this species the ovum demanded for its journey about forty-eight hours. In the case just alluded to, seven days had elapsed, and consequently a period perfectly sufficient seems to have been given for the purpose, and there can be little doubt that the minute body observed in the cavity of the uterus was a genuine impregnated ovum that had completed its travels.

Time and descent of the ovum to the uterus not precisely ascertained.

But whence comes it to pass, if the copulative perculsion, felt through every fibre, be the cause of the detachment of ova or ovula from the ovaria, that examples should be found of a like detachment, and consequently of a formation of corpora lutea in cases where no copulation has ever taken place? Of the fact itself there is no question. "Upon examining", says Sir Everard Home, "the ovaria of several women who had died virgins, and in whom the hymen was too perfect to admit of the possibility of impregnation, there were not only distinct corpora lutea, but also small cavities round the edge of the ovarium, evidently left by ova that had passed out at some former period, *so that this happens during the state of virginity.*"*

Whence corpora lutea in virgins, or where no copulation has occurred.

Of the fact itself no question.

Exemplified.

* Phil. Trans. 1817. ut suprà.

CLASS V. III. Difficulties accompanying the subject of generation. Accounted for by a supposition that they are produced by an organic impulse operating on the persons of females of a highly amorous disposition. The facts alluded to not quite satisfactory upon this point, though offered by Home, Blumenbach.

Professor Blumenbach has met with similar examples; and they have endeavoured to account for it, first, by supposing that the females thus circumstanced must have been of a peculiarly amorous disposition, and at particular times morbidly excited by a venereal orgasm originating in their own persons alone, without any intercourse with the male sex. And next, that a high-wrought excitement of this kind may be sufficient to produce such an effect, and to lead to the first and most important step in the generative process. All this is highly ingenious, but we seem at present to want facts to justify us in offering such an explanation. "We cannot doubt," says Sir Everard Home, "that every time a female quadruped is in heat, one or more ova pass from the ovarium to the uterus, whether she receives the male or not*. And to the same effect Professor Blumenbach, who first launched this opinion in 1718, before the Royal Society† of Göttengen, "The state of the ovaria", says he, "of women who have died under strong sexual passion has been found similar to that of rabbits during heat." And in confirmation of this he adds: "in the body of a young woman, eighteen years of age, who had been brought up in a convent, and had every appearance of being a virgin, Valisneri found five or six vesicles *pushing forward* in one ovarium, and the correspondent Fallopian tube redder and longer than usual, as he had frequently observed in animals during heat. Bonet," he adds, "gives the history of a young lady who died furiously in love with a man of low rank, and whose ovaria were turgid with vesicles of great size." In neither of these cases, however, do we meet with ovula actually detached, and still less with corpora lutea. Add to which, that not only corpora lutea, but detached ovula, and even imperfect fetation, have at times been found in the ovaries of infants of ten or twelve years of age, who can scarcely be suspected of any such erethism: a very curious instance

* Phil. Trans. 1817. ut suprà.

† Specimen Physiologiæ comparatæ. Comment. Soc. Reg. Scientiæ Göttengens. Vol. IX. 128.

of which we shall have to quote from Dr. Baillie, under the genus Prœotia*.

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I am aware that the same explanation has been adopted by M. Cuvier, indeed it is difficult to adopt any other, but direct facts in support of it are as wanting in him as well as in the authorities just referred to. There is an indirect fact appealed to, however, by the last, which is well worth noticing for its curiosity, whatever degree of bearing it may have upon the present question. After observing that a corpus luteum is not positive evidence of impregnation, he adds, nor does the existence of a decidua in the uterus constitute better evidence of the same, since it has sometimes happened that at each period of painful menstruation the excitement of the uterine vessels has produced a perfect decidua not to be distinguished from that belonging to an ovum. The present author has never met with a case of this kind, but of the fact itself there seems no doubt: Morgagni has given one striking instance of it in his day †, and Mr. Stanley another in our own ‡. To explain the origin of such a membrane under such circumstances is by no means difficult, as it follows upon the common principle by which other membranous or membrane-like tunics are produced in other hollow organs in a state of peculiar irritation, of which some curious examples have already been offered under DIARRHŒA TUBULARIS §. The peculiar character of the membrane must necessarily be governed by the character of the organ in which it is formed. Upon the whole, it does not seem to afford much support to the argument in whose favour it is appealed to, and the subject requires further investigation.

Cuvier, and Indirect support from another curious fact.

Origin of this membrane explained.

Does not afford much support to the common conjecture.

The third difficulty attendant upon the common doctrine of the day, which supposes the fetus to hold its entire communication with, and to derive its blood, nutriment, and oxygene from the mother by means of the placenta and umbilical chord, is founded upon the occa-

Third difficulty: growth and support of fetus where no placenta or umbilical chord.

* Class v. Ord. ii. Gen. ii Spec. ii. of the present volume.

† De Sed. et Caus. Morb. Ep. ‡ Med. Trans. Vol. vi. Art. xvi.

§ Vol. i. p. 252.

CLASS. V. III. Difficulties accompanying the subject of generation.

What is the substitute on such occasions?

This singular fact triumphantly appealed to by the advocates for the doctrine of epigenesis, as overthrowing the doctrine of evolution.

sional instances of fetuses of large and even full growth being found in the womb, and even brought forth at the proper period without any placenta, or at least of any utility, without any umbilical chord, or even the trace of an umbilicus. Admitting the course just glanced at to be the ordinary provision of Nature, what is the substitute she employs on these occasions? the means by which the bereft fetus is supplied with air and nourishment?

The advocates of the doctrine of epigenesis, as new modelled by the hands of Buffon and Darwin, triumphantly appeal to these curious deviations from the established order of nature, as effecting a direct overthrow of the doctrine of evolution by an impregnated ovum: while the supporters of the latter doctrine have too generally cut the question short by a flat denial of such monstrous aberrations.

The fact itself flatly denied by some of their opponents.

Difficulty still hanging whichever party may be correct.

The first party object unphilosophically.

There is little of the true spirit of philosophy in either conduct. Admitting the existence of such cases, they just as much cripple the one doctrine as the other; for, granting the explanation which is usually offered by the former, the ordinary machinery of a placenta and an umbilical chord, become immediately a work of supererogation: a bulky and complicated piece of furniture to which no important use can be assigned, and which the overloaded uterus might be well rid of.

And still more unphilosophical a denial of the second, merely because no explanation of the occurrence,

But, on the contrary, to deny the existence of well established and accumulated facts, merely because we cannot bend them to our own speculation, is still weaker and more reprehensible. The kangaroo, opossum, and wombat, all breed their young without either placenta or naval-string. The embryons are inclosed in one or more membranes, which are not attached to the coats of the uterus, and are supplied with nourishment, and apparently with air from a gelatinous matter by which they are surrounded. Hoffman gives us the case of a fetus born in full health and vigour, with the funis sphacelated and divided into two parts*. Vander Wiel gives the history

Illustrations of the fact.

* Op. de Pinguedine.

of a living child exhibited without any umbilicus, as a public spectacle *; and in a foreign collection of literary curiosities is the case of a hare which was found, on being opened, to contain three leverets, two of them without a placenta or umbilical vessels, and the other with both †. Ploucquet has collected a list of several other instances in his Initia ‡: but, perhaps, the most striking example on record is one which occurred to the present author in December 1791, an account of which he gave to the public in 1795 §. The labour was natural, the child, scarcely less than the ordinary size, was born alive, cried feebly once or twice after birth, and died in about ten minutes. The organization, as well external as internal, was imperfect in many parts. There was no sexual character whatever, neither penis nor pudendum, nor any interior organ of generation: there was no anus or rectum, no funis, no umbilicus; the minutest investigation could not discover the least trace of any. With the use of a little force, a small shrivelled placenta, or rather the rudiment of a placenta followed soon after the birth of the child, without a funis or umbilical vessels of any kind, or any other appendage by which it appeared to have been attached to the child. No hemorrhage or even discoloration followed its removal from the uterus. In a quarter of an hour afterwards a second living child was protruded into the vagina and delivered with ease, being a perfect boy attached to its proper placenta by a proper funis. The author dissected the first of these shortly after its birth in the presence of two medical friends of distinguished reputation, Dr. Drake of Hadleigh, and Mr. Anderson of Sudbury, both of whom are still able to vouch for the correctness of this statement. On the present occasion, however, it is not necessary to follow up the amorphous appearances any further, as they are already before the public, except to

CLASS V. III. Difficulties accompanying the subject of generation.

Striking case that occurred to the present author.

* Observ. Cent. post. † Commerc. Litera. Norimberg.

‡ Initia Bibliothecæ, Medico-Pract. et Chirurg. Tom. III. p. 554. 4to. Tubing. 1794.

§ Case of Preter-natural Fetation, with observations: read before the Medical Society of London, Oct. 20, 1794.

Class V. III. Difficulties accompanying the subject of generation.

state that the stomach, which was natural, was half fille with a liquid resembling that of the amnios.

Subject formerly discussed with much ability and at great length, in the Edinburgh Medical Essays.

This subject has been brought forward, and will be found ably discussed in the earlier volumes of the Edinburgh Medical Essays, by Professor Monro, and Mr. Gibson *. The latter, giving full credit to the few histories of the case then before the world, endeavours very ingeniously to account for the nutriment of the fetus by the liquor amnii, which he conjectures to be the ordinary source of supply, and not the placenta. The chief arguments are that the embryon is at all times found at an earlier period in the uterus than in the placenta itself; which does not appear to be perfected till two or three months after conception; and consequently that the embryon must, thus far, at least, be supported from some other source than the placenta; and if thus far, why not through the whole term of parturition? That extra-uterine fetuses have no placenta, and yet obtain the means of growth and evolution from the surrounding parts. That the liquor amnii is analogous in its appearance to the albumen of a hen's egg, which forms the proper nourishment of the young chick: that it is found in the stomach and mouths of viviparous animals when first born; and that it diminishes in its volume in proportion to the growth of the fetus.

Supported by Gibson.

Opposed by Monro.

To these arguments it was replied by Professor Monro that we have no satisfactory proof that the liquor amnii is a nutritive fluid at all, and that in the case of amorphous fetuses produced without the vestige of a mouth or of any other kind of passage leading to the stomach, it cannot possibly be of any such use: that if the office of the placenta be not that of affording food to the embryon, it become those who maintain the contrary to determine what other office can be allotted to it; and that till this is satisfactorily done, it is more consistent with reason to doubt the few and unsatisfactory cases at that time brought for-

* Vol. I. Art. XIII. Vol. II. Art. IX. X. XI. See also Dr. Fleming's paper. Phil. Trans. Vol. XLIX. 1755-6. p. 254.

ward, than to perplex ourselves with facts directly contradictory of each other.

Class V. III. Difficulties accompanying the subject of generation.

For the full scope of the argument the reader must turn to the Edinburgh Medical Essays themselves, or for a close summary to the present author's observations appended to his own case. It must be admitted that the instances adverted to in the course of the discussion are but few, and most of them stamped with something unsatisfactory. Others, however, might have been advanced even at that time on authorities that would have settled the matter of fact at once, how much soever they might have confounded all explanation. But after the history just given, and the references to other cases by which it may be confirmed, this is not necessary on the present occasion.

In this discussion the doctrine of aeration not adverted to.

It is singular that the subject of aeration, which forms another difficulty in discussing the question, is not dwelt upon on either side, notwithstanding the ingenious conjecture of Sir Edward Hulse, that the placenta might be an organ of respiration as well as of nutrition, had at this time been before the public for nearly half a century: and it shows us how slow the best founded theories not unfrequently are in obtaining the meed of public assent to which they are entitled from the first.

Other difficulties of a more general kind but quite as inexplicable.

Extra-uterine fetuses developed without placenta or amnios.

These, however, are only a few of the peculiar difficulties that still accompany the subject of generation, to whatever doctrine we attach ourselves. There are others that are more general, but equally inexplicable. The whole range of extra-uterine fetuses is of this character; often formed and nourished and developed without either a placenta or an amnios, and yet sometimes advancing, even in the remote cavity of the ovarium, and perfect in every organ, to the age of, at least, four months, of which we have already offered an example. A great part of the range of monstrous births defy equally all mental comprehension; particularly the production of monsters without heads or hearts, some of whom have lived for several days after birth*; others consisting of a head alone, wholly destitute

Amorphous births of various kinds equally unaccountable.

* See for examples and authorities the author's volume of Nosology, p. 538.

Class V. III. Difficulties accompanying the subject of generation.

of a trunk, and yet, possessing a full developement of this organ; a specimen of which was lately in the possession of Dr. Elfes, of Neuss, on the Rhine*: and others again, the whole of whose abdominal and thoracic viscera has been found transposed†.

Transmission of talents, defects, or other peculiarities from generation to generation.

Nor less inexplicable is the generative power of transmitting peculiarities of talents, of form, or of defects in a long line of hereditary descent, and occasionally of suspending the peculiarity through a link or two, or an individual or two, with an apparent capriciousness, and then of exhibiting it once more in full vigour. The vast influence which this recondite, but active power possesses, as well over the mind as the body, cannot, at all times, escape the notice of the most inattentive. Not only are wit, beauty, and genius propagable in this manner, but dulness, madness, and deformity of every kind.

Further illustrated.

Even where accident, or a cause we cannot discern, has produced a preternatural conformation or singularity in a particular organ, it is astonishing to behold how readily it is often copied by the generative power, and how tenaciously it adheres to the future lineage. A preternatural defect in the hand or foot, has, in many cases, been so common to the succeeding members of a family, as to lay a foundation in every age and country for the family name, as in that of Varro, Valgius, Flaccus and Plautus at Rome. Seleucus had the mark of an anchor on his thigh, and is said to have transmitted it to his posterity: and supernumerary fingers and toes have descended in a direct line for many generations in various countries. Hence hornless sheep and hornless oxen produce an equally hornless offspring, and the broad-tailed Asiatic sheep yields a progeny with a tail equally monstrous, often of not less than half a hundred pounds weight. And hence, too, those enormous prominences in the hinder parts of one or two of the nations at the back of the Cape of Good Hope, of which examples have been furnished to us in our own island.

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* Hufeland, Journal der Practischen Heilkunde. Apr. 1816.

† Samson, Phil. Trans. 1674.

How are we moreover to account for that fearful host of diseases, gout, consumption, scrofula, leprosy and madness, which, originating perhaps in the first sufferer accidentally, are propagated so deeply and so extensively that it is difficult to meet with a family whose blood is totally free from all hereditary taint? By what means this predisposition may be best resisted it is not easy to determine. But as there can be no question that intermarriages among the collateral branches of the same family tend more than any thing else to fix and multiply and aggravate it, there is reason to believe that unions between total strangers, and, perhaps, inhabitants of different countries, form the surest antidote. For admitting that such strangers to each other may be tainted on either side with some morbid predisposition peculiar to their respective lineages, each must lose something of its influence by the mixture of a new soil; and we are not without analogies to render it probable that in their mutual encounter the one may even destroy the other by a specific power. And hence, nothing can be wiser, on physical as well as on moral grounds, than the restraints which divine and human laws have concurred in laying on marriages between relations: and though there is something quaint and extravagant, there is something sound at the bottom, in the following remark of the sententious Burton upon this subject: "And surely", says he, "I think it has been ordered by God's especial providence, that, in all ages, there should be, once in six hundred years, a transmigration of nations to amend and purify their blood, as we alter seed upon our land; and that there should be, as it were, an inundation of those northern Goths and Vandals, and many such like people, which came out of that continent of Scandia and Sarmatia, as some suppose, and over-ran, as a deluge, most part of Europe and Africa, to alter, for our good, our complexions that were much defaced with hereditary infirmities, which by our lust and intemperance we had contracted."* Boethius informs

Class V. III. Difficulties accompanying the subject of generation.

Transmission of diseases.

By what means such transmissions may be best opposed.

Wisdom of the restraints of divine and human laws on intermarriages between near relations.

Quaint remedy proposed by Burton.

Severe law formerly in existence in Scotland.

* Anatomy of Melancholy, Vol. I. Part I. Sect II. p. 69. 8vo.

Class V. III. Difficulties accompanying the subject of generation.

us of a different and still severer mode of discipline at one time established in Scotland for the same purpose, but which, however successful, would make, I am afraid, sad havoc in our own day, were it ever to be carried into execution. "If any one", says he, "were visited with the falling sickness, madness, gout, leprosy, or any such dangerous disease, which was likely to be propagated from father to son, he was instantly castrated; if it were a woman she was debarred all intercourse with men; and if she were found pregnant with such complaint upon her, she and her unborn child were buried alive."*

* De Veterum Scotorum Moribus, Lib. I.

CLASS V.

GENETICA.

ORDER I.

CENOTICA.

Diseases affecting the Fluids.

MORBID DISCHARGES; OR EXCESS, DEFICIENCY OR IRREGULARITY OF SUCH AS ARE NATURAL.

Class V. Order I. Scope of the order.

THIS order, the name of which is derived from Galen, and has been explained already, is designed to include a considerable number of diseases which have hitherto been scattered over every part of a nosological classification, but which are related to each other, as being morbid discharges dependent upon a morbid condition of one or more of the sexual organs. The term employed might have been MEDORRHŒTICA but that medorrhœa, as a genus, has been already employed by Professor Frank, of Paris, in a somewhat different, and, as it appears to the author, peculiarly indistinct sense; as combining, under a single generic name, what seems to be a medley of diseases with no other connexion than locality, or contiguity of organs, as mucous piles, fistula in ano, leucorrhœa, clap, gleet, syphilis, phimosis, paraphimosis, and what was formerly called hernia humoralis, by him named epidydimitis, the orchitis of the present system. The genera under this order are five, and may be thus expressed:

I.	PARAMENIA.	MISMENSTRUATION.
II.	LEUCORRHŒA.	WHITES.
III.	BLENNORRHŒA.	GONORRHŒA.
IV.	SPERMORRHŒA.	SEMINAL FLUX.
V.	GALACTIA.	MISLACTATION.

GENUS I.

PARAMENIA.

Mismenstruation.

MORBID EVACUATION OR DEFICIENCY OF THE CATAMENIAL FLUX.

GEN. I. Origin of generic term.

PARAMENIA is a Greek term derived from παρὰ "male" and μὴν "mensis." The genus is here limited to such diseases as relate to the menstrual flux, or the vessels from which it issues. This fluid is incorrectly regarded as blood, by Cullen, Leake, Richerand, and other physiologists: for, in truth, it has hardly any common property with blood, except that of being a liquid of a red colour. It is chiefly distinguished by its not being coagulable; and hence, when coagula are found in it, as in laborious and profuse menstruation, serum or blood is intermixed with it, and extruded either from atonic relaxation or entonic action of the menstrual vessels. "It is", observes Mr. John Hunter, "neither similar to blood taken from a vein of the same person, nor to that which is extravasated by accident in any other part of the body; but is a species of blood, changed, separated, or thrown off from the common mass by an action of the vessels of the uterus similar to that of secretion; by which action the blood loses the principle of coagulation, and, I suppose, life." Mr. Cruikshank supposes it to be thrown forth from the mouths of the exhaling arteries of the uterus, enlarged periodically for this purpose; and his view of the subject seems to be

Catamenia incorrectly regarded as blood: since it has hardly any property in common with it.

How distinguished by J. Hunter.

By Cruikshank.

Further illustrated.

confirmed by a singular case of prolapse, both of the uterus and vagina, given by Mr. Hill, of Dumfries, in the Edinburgh Medical Commentaries. In this case, the os tincæ appeared like a nipple projecting below the retroverted vagina, which assumed the form of a bag. The patient, at times, laboured under leucorrhœa: but it was observed that, when she menstruated, the discharge flowed entirely from the projecting nipple of the prolapse; while the leucorrhœa proceeded from the surrounding bag alone*.

GEN. I. Paramenia. Mismenstruation.

As this distinction has not been sufficiently attended to either by nosologists or physiologists, many of the diseases occurring in the present arrangement under paramenia, have been placed by other writers under a genus named menorrhagia, which, properly speaking, should import hemorrhage (a morbid flow of *blood alone*) from the menstrual vessels. And we have here, therefore, not only a wrong doctrine but the formation of an improper genus; for menorrhagia or uterine hemorrhage is, correctly speaking, only a species of the genus HÆMORRHAGIA, and will be so found in the present system, in which it occurs in Class III. Order IV. This remark applies directly to Sauvages; and quite as much so to Cullen, who, in his attempt to simplify, has carried the confusion even further than Sauvages. Few diseases, perhaps, of the uterus, or uterine passage can be more distinct from each other than vicarious menstruation, lochial discharge, and sanious ichor; yet all these, with several others equally unallied, are arranged by Sauvages under the genus menorrhagia, though not one of them belongs to it. While Cullen not only copies nearly the whole of these maladies with the names Sauvages has assigned them, but adds to the generic list leucorrhœa or whites, abortion, and the mucous fluid, secreted in the beginning of labour from the glandulæ Nabothi at the orifice of the womb, and hence vulgarly denominated its *show*, or appearance.

Nosological confusion from not attending to this distinction.

particularly in Sauvages and Cullen.

Menstruation may be diseased from obstruction, severe pain in its secretion, excess of discharge, transfer to some

* Vol. IV. p. 91.

Gen. I. Paramenia. Mismenstruation.

other organ, or cessation; thus offering us the five following species, accompanied with distinct symptoms:

Specific divisions of morbid menstruation.

1.	PARAMENIA OBSTRUCTIONIS.	OBSTRUCTED MENSTRUATION.
2.	——— DIFFICILIS.	LABORIOUS MENSTRUATION.
3.	——— SUPERFLUA.	EXCESSIVE MENSTRUATION.
4.	——— ERRORIS.	VICARIOUS MENSTRUATION.
5.	——— CESSATIONIS.	IRREGULAR CESSATION OF THE MENSES.

SPECIES I.

PARAMENIA OBSTRUCTIONIS.

Obstructed Menstruation.

CATAMENIAL SECRETION OBSTRUCTED IN ITS COURSE; SENSE OF OPPRESSION; LANGUOR; DYSPEPSY.

Gen. I. Spec. I.

This species by many writers called menostatio, appears under the two following varieties:—

α Emansio. Retention of the menses.	The secretion obstructed on its accession or first appearance. The feet and ancles edematous at night; the eyes and face in the morning.
β Suppressio. Suppression of the menses.	The secretion obstructed in its regular periods of recurrence. Head-ache, dyspnœa, palpitation of the heart.

In order to explain the FIRST of these VARIETIES, or RETENTION OF THE MENSES, by Professor Frank quaintly denominated amenorrhœa* tiruncularum, it is necessary to observe that when the growth of the animal frame is completed, or nearly so, the quantity of blood and sensorial power which have hitherto been employed in providing for such growth, constitutes an excess, and must produce plethora by being diffused generally, or congestion by being accumulated locally. Professor Monro contended for the former effect; Dr. Cullen, with apparently more reason, for the latter. And this last turn it seems to take for the wisest of purposes; I mean in order to prepare for a future race by perfecting that system of organs which is immediately concerned in the process of generation; and which, during the general growth of the body, has remained dormant and inert, to be developed and perfected alone when every other part of the frame has made a considerable advance towards maturity, and there is, so to speak, more leisure and materials for so important a work. We shall have occasion to touch upon this subject more at large when we come to treat of the genus CHLOROSIS: for the present it will be sufficient to observe that this accumulation of nervous and sanguineous fluid seems first to show itself among men in the testes and among women in the ovaria; and that from the ovaria it spreads to all those organs that are connected with them either by sympathy or unity of intention, chiefly to the uterus and the mammæ; exciting in the uterus a new action and secretion, which secretion, in order to relieve the organ from the congestion it is hereby undergoing, is thrown off periodically, and by lunar intervals, in the form of a blood-like discharge, although when minutely examined, the discharge, as already stated, is found to consist, not of genuine blood, but of a fluid possessing peculiar properties. These properties we have already enlarged upon, and have shown in what they differ from those of proper blood: and it is upon this point that the physiology of Dr. Cullen is strikingly erroneous; for

Gen. I. Spec. I. a P. obstructionis Emansio. Retention of the menses. Physiology.

Sexual organization when perfected, by what means:

and with what result.

Menstrual discharge.

Its character. Erroneous view of Cullen.

* De Cur. Hom. Morb. Epit. Tom. VI. Lib. VI. Part III. 8vo. Vienna, 1821.

Gen. I. Spec. I. α P. obstructionis Emansio. Retention of the menses.

not only in his First Lines, but long afterwards in his Materia Medica, he regards the discharge as pure blood, and, consequently, the economy of menstruation as a periodical hemorrhage. "I suppose," says he, "that in consequence of the gradual evolution of the system, at a certain period of life, the vessels of the uterus are dilated and filled: and that by this congestion these vessels are stimulated to a stronger action by which their extremities *are forced open and pour out blood.* According to this idea it will appear that, I suppose, the menstrual discharge to be upon the footing of *an active hemorrhagy*, which, by the laws of economy, is disposed to return after a certain interval."*

Sympathetic affection with the uterus at this time often manifested in remote parts.

From the sympathy prevailing between the uterus and most other organs of the system, we meet not unfrequently with some concomitant affection in various remote parts; as an appearance of spots on the hands or forehead antecedently to the efflux†; or, which is more common, a peculiar sensation or emotion in the breasts ‡.

Catamenia why thrown off monthly rather than at other periods not known. Still a proof of design obvious: and a habit established by repetition.

We cannot explain the reason why this fluid should be thrown off once a month or by lunar periods, rather than after intervals of any other duration. But the same remark might have been made if the periods had been of any other kind: and will equally apply to the recurrence of intermittent fevers. It is enough that we trace in this action the marks of design and regularity: and, after the establishment of a habit by a few repetitions, there is no difficulty in accounting for the intervals being of equal length.

Period of first appearance variable: from eight or nine in hot climates,

The time in which the secretion, and consequently the discharge, commences, varies from many circumstances; chiefly, however, from those of climate, and of peculiarity of constitution. In warm climates menstruation appears often as early as at eight or nine years of age—for here the general growth of the body advances more rapidly than

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* Mat. Med. Vol. II. p. 587. 4to.
† Salmuth, Cent. III. Obs. 18.
‡ Act. Nat. Cur. Vol. III. App. p. 168.

in colder quarters, and the atmosphere is more stimulant. In temperate climates it is usually postponed till the thirteenth or fourteenth year, and in the arctic regions till the nineteenth or twentieth.

a P. obstructionis Emansio. Retention of the menses.

to thirteen or fourteen in temperate, and nineteen or twenty in arctic regions.

In all climates, however, when the constitution has acquired the age in which it is prepared for the discharge, various causes, observes Dr. Gulbrand, may accelerate its appearance. Among these we may mention any preternatural degree of heat or fever, or any other stimulus that quickens the circulation. Mauriceau relates a case in which it was brought on suddenly by an attack of a tertian intermittent: and in like manner anger or any other violent emotion of the mind, has been found to produce it as abruptly. The depressing passions, as fear and severe grief, conduce to the same end though in a different way: for here there is rather uterine congestion than increased impetus, in consequence of the spastic chill of the small vessels on the surface, which lessens their diameter. Inordinate exercise, or a high temperature of the atmosphere, has in like manner a tendency to hurry on the menstrual tide; and hence its appearing so early in tropical regions.

Generally accelerated by accidents.

Sometimes by a difference in the electricity or weight of the atmosphere.

Dr. Gulbrand, indeed, conceives that even an increase in the elasticity or weight of the atmosphere is sufficient to produce a like effect, and refers to a curious fact in proof of this. In an hospital, to which he was one of the physicians, he tells us that a very considerable number of the female patients were suddenly seized with catamenia; which was the more remarkable because several of these had, for a considerable time, laboured under a suppression of that discharge, and had been taking emmenagogues to no purpose; while others had only been free from their regular returns for a few days. On inquiring into the cause, the only one which could be ascertained was a very great augmentation in the weight or pressure of the atmosphere, the mercury in the barometer having attained a height at which it had never been observed at Copenhagen before: though he does not state the point it had actually reached*. It is possible that other general causes may

Hence the disease sometimes

* De Sanguifluxû Uterino. 8vo. Hafn.

GEN. I. SPEC. I. a P. obstructionis Emansio. Retention of the menses.

sometimes operate to a like extent; and hence this disease is said, by Stoll and other writers, to be occasionally epidemic*.

said to be epidemical.

Still much depends upon the idiosyncrasy: some girls are of a more rapid growth than others of the same climate; and in some there is a peculiar sexual precocity or prematurity of orgasm that hurries on the discharge before the general growth of the body would lead us to expect it: of which Pecklin gives an example in a girl of seven years of age who, in the intervals, laboured under a leucorrhœa†. And hence chiefly we are able to account for those very early and marvellous stories of pregnancy in girls of not more than nine years old, which, if not well authenticated, and from different and unconnected quarters, might justify a very high degree of scepticism‡.

Much depends on the idiosyncrasy under which pregnancy is reported to have occurred at nine years of age.

Duration of the discharge. Quantity secreted. Ultimate term.

The efflux continues from two to eight or ten days; and the quantity thrown forth varies from four to ten ounces in different individuals: the monthly return running on till the fortieth or fiftieth year, and sometimes, as we shall have occasion to observe hereafter, to a much later period of life.

Retention not always a disease. Sometimes prevented by structural defect. Sometimes by constitutional tardiness.

It is not always, however, that a retention of the menses to a much later date than sixteen, or even twenty years of age constitutes disease: for sometimes it never takes place at all, as where the ovaries are absent or perhaps imperfect; or where, instead of precocity in the genital system, there is a constitutional tardiness and want of stimulus; under which circumstances it appeared for the first time, according to Holdefreund, in one instance at the age of seventy§: and in another, that fell under the care of Professor Frank, it never appeared either in a condition of single or married life, nor had the patient at any time any lochial discharge, though she had produced three healthy children.‖

Has occurred for the first time at seventy.

Hence retention only a disease when

It is only, therefore, when symptoms take

* Rat. Med. P. III. p. 48. Samml. Med. Wahrnehm. IX. B. p. 401.

† Lib. I. Obs. 24.

‡ Haller (Gottl. Eman.), Blumenbach. Bibl. I. p. 558. Schmid, Act. Helvet. IV. p. 167. Eph. Nat. Cur. Dec. III. An. II. Obs. 172.

§ Erzählungen, No. 4.

‖ De Cur. Hom. Morb. Epit. Tom. VI. Lib. VI. Part III. 8vo. Vienna, 1821.

place indicating a disordered state of some part or other of the body, and which experience teaches us is apt to arise upon a retention of the menstrual flux, that we can regard such retention as a disease.

GEN. I. SPEC. I. a P. obstructionis Emansio. Retention of the menses.

These symptoms, as already stated in the definition of the disorder, consist chiefly in a general sense of oppression, languor, and dyspepsy. The languor extends over the whole system, and affects the mind as well as the body: and hence, while the appetite is feeble and capricious, and shows a desire for the most unaccountable and innutrient substances, the mind is capricious and variable, often pleased with trifles, and incapable of fixing on any serious pursuit. The heat of the system is diffused irregularly and is almost always below the point of health: there is, consequently, great general inactivity and particularly in the small vessels and extreme parts of the body. The pulse is quick but low, the breathing attended with labour, the sleep disturbed, the face pale, the feet cold, the nostrils dry, the intestines irregularly confined, and the urine colourless. In some instances there is an occasional discharge of blood, or a blood-like fluid from a remote organ, as the eyes, the nose, the ears, the nipples, the lungs, the stomach, or even the tips of the fingers, giving examples of the fourth species. There is also, sometimes, an irritable and distressing cough; and the patient is thought to be on the verge of a decline, or perhaps to be running rapidly through its stages.

the body is disordered in consequence hereof.

Description of symptoms when the system suffers.

Patient sometimes thought to be in a decline.

A decline, however, does not follow, nor is the disease found fatal, although it should continue, as it has done not unfrequently, for many years: for if the proper discharge do not take place, the constitution will often in some degree accommodate itself to the morbid circumstances that press upon it, and many of the symptoms will become slighter or altogether disappear. Most commonly, however, when the patient is supposed to be at the worst, probably from the increased irritation of the system peculiarly directed to the defaulting organs, a little mucous or serous discharge, with a slight show of colour is the harbinger of a beneficial change, and is soon succeeded by the

Yet decline does not follow though the disease continue for many years. System sometimes accommodates itself to the morbid condition. Disease sometimes ceases gradually when supposed to be at the worst.

GEN. I. SPEC. I.

α P. obstructionis Emansio. Retention of the menses.

proper discharge itself: though it often happens that the efflux is at first not very regular either as to time or quantity. But this is an evil which generally wears away by degrees, and is diminished with every recurrent tide.

Manifestly a disease of debility, which is generally the primary cause.

All the symptoms indicate that retained menstruation is a disease of debility; and there can be little doubt that debility is its primary cause—a want of energy in the secernent vessels of the uterus that prevents them from fulfilling their office, till the increase of irritability, from the increase of general weakness, at length produces a sufficient degree of stimulus, and thus momentarily supplies the place of strength. The system at large suffers evidently from sympathy.

β P. obstructionis Suppressio. Suppression of the menses.

Yet menostation may take place from a SUPPRESSION OF THE MENSES after they have become habitual, as well as from their retention in early life, which constitutes the SECOND VARIETY of the disease.

Cause mostly that of the preceding variety.

The causes of this form are for the most part those of the preceding, and consist in a torpitude of the extreme or secernent vessels of the uterus produced by anxiety of mind, cold, or suddenly suppressed perspiration; falls, especially when accompanied with terror, or a general inertness and flaccidity of the system, and more particularly of the ovaria. Hence the disease may exist equally in a robust and plethoric habit and in the midst of want and misery. In the last case, however, it is usually a result of weakness alone; and on this account it is sometimes found as a sequel upon protracted fevers.

May exist equally in a robust and delicate frame.

Symptoms necessarily different from those of the preceding variety, and why.

Yet not essentially different in weakly habits.

As this modification of the disease occurs after a habit has been established in the constitution, its symptoms differ in some degree from those we have just contemplated. And, as it occurs also both in a state of entony and atony, the symptoms must likewise differ according to the state of the constitution at the time. If, however, the frame be at the time peculiarly weak and delicate, the signs will not essentially vary from those of the first variety, only that there will be a greater tendency to head-ache, and palpitation of the heart.

Symptoms in an entonic habit.

If the habit be plethoric, and, more particularly, if the

cause of suppression take place just at the period of menstruation, or during its efflux, a feverish heat and aridity of the skin usually make their appearance, the face is flushed and the eyes red, the head is oppressed and often aches, with distressing pains down the back, occasionally relieved by a hemorrhage from the nose.

Gen. I. Spec. I. β P. obstructionis Suppressio. Suppression of the menses.

As the principle which should guide us in the mode of treating both these varieties, will also extend to the ensuing species, it will be most convenient to defer the consideration of it till that species has passed in review before us. We shall then be able to see how far a common process may apply, and to contrast the few points in which it will be necessary to institute a difference. All these, indeed, have by many writers, and especially by Dr. Cullen, been included under the term amenorrhœa, which Professor Frank has lately employed in a still wider sense, so as to embrace not only those three distinct forms of impeded menstruation, but chlorosis as well*.

Mode of treatment postponed to the close of the ensuing species, and why.

SPECIES II.

PARAMENIA DIFFICILIS.

Laborious Menstruation.

CATAMENIA ACCOMPANIED WITH GREAT LOCAL PAIN AND ESPECIALLY IN THE LOINS; PART OF THE FLUID COAGULABLE.

In the preceding species the regular efflux is altogether prevented, as we have already observed, by a torpitude of the secerning vessels of the uterus, perhaps of the ovaries also. In the species before us there is no actual suppres-

Gen. I. Spec. II. How distinct from the preceding species. Quantity of discharge too small;

* *De Cur. Hom.* Morb. Epit. Tom. VI. Lib. VI. Part. III. 8vo. Vienna, 1821.

GEN. I. SPEC. II. Paramenia difficilis.

Laborious menstruation.

sion, but the quantity thrown forth is for the most part too small, and attended with severe and forcing pains about the hips and region of the loins, that clearly indicate a spasmodic constriction of the extreme vessels of the uterus. The secretion is hence extruded with great difficulty, and is sometimes perhaps of a morbid character: while from the force of the action the mouths of some of the vessels give way and a small portion of genuine blood becomes intermixed with the menstrual discharge, forming coagula in the midst of an uncoagulating fluid, and thus drawing a critical line of distinction between the two.

and pains about the loins.

Secretion intermixed with blood.

Adjoining organs affected.

The spastic action, thus commencing in the minute vessels of the uterus, not only spreads externally to the lumbar muscles, but internally to the adjoining organs of the rectum or bladder, in many instances, indeed, to the kidneys; and hence an obstinate costiveness, and suppression of urine are added to the other symptoms, and increase the periodical misery; the frequent return of which embitters the life of the patient, and effectually prohibits all hope of a family: for if impregnation should take place in the interval, the expulsory force of the pains is sure to detach the embryon from its hold, and to destroy the endearing promise which it offers. These pains generally recur at the regular period, but often anticipate it by a day or two, and rarely cease till a week afterwards. The disease, moreover, is peculiarly obstinate, and in some instances has defied the best exertions of medical science, and has only yielded to time, and the natural cessation of the discharge.

Hope of a family prohibited.

Often chronic, and only terminates with the period of menstruation itself.

Occasional formation of membrane-like material, as in other organs under peculiar irritation.

We have frequently had occasion to observe, and especially under croup, and tubular diarrhœa, that where hollow and mucous organs labour under a certain degree of irritation, a portion of gluten is often thrown forth with the morbid secretion that takes place on the surface, and the result is the formation of a new membrane or membrane-like substance that lines the cavity to a greater or less extent: the nature of this substance being regulated by the nature of the organ in which it takes place. This remark applies particularly to the uterus under the influence of the irritation we are now speaking of; and, con-

Membrane resembles the decidua of impregnation.

sequently, a membrane very much resembling the decidua, or that naturally elaborated by the uterus on impregnation, has been occasionally formed and discharged in fragments *, during the violence and forcing pain of laborious menstruation. And sometimes the protrusive agony has been so severe as to occasion a displacement, or retroversion of the uterus, which has been found forced down, enlarged, with the fundus thrown backward, and the indurated mouth facing the lower edge of the symphysis pubis †.

GEN. I. SPEC. II. Paramenia difficilia. Laborious menstruation.

Cold, mental emotion, local injury from a fall, and above all, a peculiar irritability of the uterus itself, are the common causes.

Ordinary causes.

The cure of all the forms of paramenia, we have thus far noticed, is to be attempted first, by increasing the tone of the system in general, and next, by exciting the action of the uterine vessels, where they are morbidly torpid, or relaxing them where they are in pain from spasmodic constriction. Both the last, however, are subordinate to the first; for if we can once get the system into a state of good general health the balance of action will be restored, and the organs peculiarly affected will soon fall into the common train of healthful order.

General curative process.

To give strength and activity to the circulation is generally attempted by tonics: to give local action, by stimulants. Both these should be employed conjointly in the two forms of the FIRST SPECIES. The astringent tonics, however, are supposed, and apparently with good reason, to be injurious, and in many instances to extend the retardation, or diminish the flow where there is any appearance. Myrrh has long been a favourite medicine, but its power does not appear to be very considerable in mismenstruation, though it undoubtedly acts as a stimulant in phthisis, and has at times, in highly irritable habits, produced hæmoptysis. The metallic tonics are those on which we can chiefly depend; and of these the principal that have been employed are iron and copper. The first requires less care

Particular treatment of Spec. I. or obstructed menstruation: astringent tonics.

Metallic tonics.

* Morgagni de Sed. et Caus. Morb. Ep. XLVIII. 12. Denman, Medical Facts and Observations, I. 12.

† Dr. J. Robertson. Edin. Med. and Surg. Journ. No. 73.

GEN. I. SPEC. II. Paramenia difficilia. Laborious menstruation.

than the second, and has hence been more frequently recurred to as the safer. It has been given under a great variety of forms, but that of the sulphate, or green vitriol, is one of the best, and most readily obtained. It is often tried, in union with myrrh; and, where symptoms of dyspepsy exist, and especially acidity in the stomach, the two have been united with the fixed alkali, a combination which makes the celebrated draught so well known by the name of its inventor, Dr. Griffiths.

Treatment. Iron with myrrh: and both with fixed alkali.

Iron why sometimes apparently astringent and at other times aperient.

Iron is, by some writers, supposed to show an astringent, and by others, an aperient power. In different constitutions it may be said to operate both ways. "If for example," says Dr. Cullen, "a retention of menses depends upon a weakness of the vessels of the uterus, chalybeate medicines, by invigorating the force of the vessels may cure the disease, and thereby appear to be aperient: and on the contrary in a menorrhagia, when the disease depends upon a laxity of the extreme vessels of the uterus, iron exhibited, by restoring the tone of these vessels, may show an astringent operation."*

Preparations of copper uncertain.

The preparations of copper labour under two disadvantages: they are essentially more astringent than many of the other metals, and at the same time more uncertain in their effect. They are, perhaps, more soluble in the stomach than any other metallic preparations, wherever there is a sufficient proportion of acid for this purpose: but as the quantity of acid in this organ is constantly varying, their effect must vary also. Dr. Fordyce advises to avoid cupreous preparations when the intention is to strengthen; but when we attempt to lessen irritability he observes that they are extremely useful; and hence, their advantage in epilepsy and plethoric hysteria. It is, however, a just remark of Dr. Saunders, that all solutions of metals are sedative and ease pain, or, in other words, take off irritability, provided the solution be not too strong.

Tinctura veneris volatilis.

The old tinctura veneris volatilis, consisting of one drachm of filings of copper infused in twelve drachms of water of

* Mat. Med. Vol. II. p. 22. 4to.

Paramenia difficilis.

Laborious menstruation.

Treatment.

ammonia, is one of the simplest and best preparations of this metal; and forms a good substitute for the cuprum ammoniacum, or c. ammoniatum of the Edinburgh and London Pharmacopœias. Boerhaave directs us to begin with three drops as a dose, and gradually to increase it to twenty-four.

Cuprum ammoniatum.

Chalybeate mineral waters and their usual concomitants.

The chalybeate mineral waters have also been used with considerable success, and the more so as with these are usually conjoined the advantages of travelling, change of air, and a new stimulus given to both the mind and body by novelty of scene, novelty of company, amusing and animating conversation, and exercise of various kinds. With these may also be combined, in the intervals of the menstrual season, and particularly before the discharge has appeared, the use of cold, and especially of sea-bathing. An unnecessary apprehension of catching cold by the employment of this powerful tonic has been entertained by many practitioners: with proper care I have never known it occasion this effect; and it should only be relinquished where no re-active glow succeeds to the chill produced by immersion, and the system is hereby proved to be too debilitated for its use.

Cold sea-bathing.

Stimulants general and local.

Character of general stimulants.

The stimulants to be employed under the first species, in conjunction with a tonic plan, are those that operate generally and locally. The general stimulants should consist of those that do not exhaust the excitability or nervous power of the frame, but rather by the moderation of their effect, and the constancy of their application, support and augment it. Exercise, which we have already recommended, will in this view also be of essential service; so will likewise be uniform warmth; and hence, the warmth of a mild climate, and a generous diet with a temperate use of wine. Hence also the benefit of friction and electricity applied directly to the hypogastric and lumbar regions *.

Friction and electricity.

* Alberti. Diss. de VI Electricâ in Amenorrhœam, seu Catameniorum obstructionem. Goett. 1764. Birch, Considerations of the Efficacy of Electricity in *Female Obstructions*, &c. Lond. 1799.

GEN. I. SPEC. II. Paramenia difficilis. Laborious menstruation. Treatment. Sometimes cured by the elevating passions; and especially by a return of hope.

As the depressing passions produce the disease, the elevating passions have been often known to operate the best and speediest cure. It has sometimes suddenly yielded to a fit of joy *, and, in one instance, from the violence of the emotion, to a fit of terror †. We can hence easily see how it may be induced by disappointed love, and removed by a return of hope and a prospect of approaching happiness ‡.

Stimulants operating locally. Generally denominated emmenagogues. Warm gums and balsams: irritating cathartics. Cantharides.

The stimulants operating locally in this disease are known by the name of emmenagogues. In the old writers the catalogue of these is very numerous. Those that are most worthy of notice consist of the warmer gums and balsams, as guaiacum, assafœtida, turpentine, and petroleum; castor, and the more irritating cathartics, as aloes and black hellebore. The last is, in most cases, too stimulant upon the whole range of the intestinal canal, though at one time in high favour as an emmenagogue. Aloes is a very valuable medicine. Dr. Adair gave it in combination with cantharides; but in this form it will often be found to produce a troublesome irritation on the rectum or bladder, rather than a salutary stimulus to the vessels of the uterus.

Juniperus Sabina or savine.

The juniperus *Sabina*, or common savine, is also a valuable medicine, as being both stimulant and slightly aperient, and operating not only locally but upon the system at large. It may be given in powder, extract, or essential oil: of the powder, the dose varies from a scruple to a drachm twice or three times a day: of the extract from half a scruple to half a drachm; and of the essential oil from two to four drops. Dr. Home thought highly of it, and M. Herz has praised it in equal terms §. The former declares that by employing the scruple doses three times a-day he succeeded in three out of five cases. But the most favourite emmenagogue in his hands, was the root of the rubia *Tinctorum* or madder. Of nineteen cases, of which he gives an account, fourteen, he tells us, were cured by it.

Rubia Tinctorum.

* Medicin Wochenblatt, 1782. p. 416. † Walther, Thes. Obs. 37.
‡ Eph. Nat. Cur. Dec. I. Ann. IX. X. Obs. 58. § Briefe, II. p. 5.

GEN. I. SPEC. II.

From half a drachm to a drachm was prescribed twice or oftener daily. Dr. Home asserts that, in this quantity, it produces scarcely any sensible operation, never quickens the pulse, nor lies heavy on the stomach; yet that it generally restores the discharge before the twelfth day from the time of its commencement*. The present author has never tried it; he has been deterred by the very different, and even contradictory accounts of its effects upon the constitution which have been given by different writers of high authority. While Dr. Home found it thus beneficial in cases of obstructed menstruation, Dr. Parr tells us that it produced a cure in excessive menstruation, but in the former disease effected no change whatever †. From its tinging the urine of a red colour it has been supposed to be a powerful diuretic, but even this quality it has been incapable of supporting: and yet, in the opinion of Dr. Cullen, this seems to be its only pretension to the character of an emmenagogue ‡. Given freely to brute animals, Dr. Cullen tells us that it always disorders them very considerably, and appears hurtful to the system. Its direct virtues do not, therefore, seem to have been in any degree ascertained; but let them be what they may, it has deservedly fallen into disrepute as a remedy for any misaffection of the uterus.

Paramenia difficilis. Laborious menstruation. Treatment. Madder. Contradictory accounts of its virtues and effects. Has deservedly fallen into disrepute.

The athamanta *Meum*, or spignel, which once rivalled the reputation of madder, and has long sunk with it into desuetude, is better entitled to notice, and ought not to be abandoned. It seems to have a peculiar influence in stimulating the lower viscera, and especially the uterus and bladder; and is no indifferent sudorific. On this last account it was at one time highly in favour also in intermittents, and was afterwards employed in hysteria, and humoral asthma.

Athamanta Meum: spignel.

It is very probable that in cases of weak action, and especially when combined with a strumous diathesis, the pills or tincture of iodine, as we shall have occasion to

Iodine.

* *Clinical Experiments*, Histories, &c. 8vo, 1780.

† *Med. Dict.* Vol. II. in verb. p. 524.

‡ *Mat. Med.* Vol. II. p. 553. 4to. edit. comp. with p. 38, of the same.

GEN. I. SPEC. II. Paramenia difficilia. Laborious menstruation. Treatment.

notice them when treating of bronchocele, may be attended with beneficial effects. Dr. Coindet regards this medicine indeed, as one of the most powerful emmenagogues we possess; and even accounts for its advantages in bronchocele from the sympathy which the uterus and the thymus manifest for each other *: but the present author cannot yet speak of its result in mismenstruation from his own practice.

This part of the subject must not be quitted without glancing at a medicine that has lately acquired great popularity in North America, as an emmenagogue, and is said to have been employed with unquestionable success.

Spurred rye. Description of its powerful action.

This is spurred rye, or rye vitiated by being infested with the clavis or ergot, a parasitic plant which we have already had occasion to notice as producing a powerful effect on the whole system, and especially on the nervous part of it, and the abdominal viscera in general. When taken in such a quantity as to be poisonous, it first excites a sense of tingling or formication, and fiery heat in the extremities, where the action of the system is weakest; to this succeed cardialgia, and griping pains in the bowels; and then vertigo, an alternation of clonic and entonic spasms in different parts of the body, and mania or loss of intellect. If the quantity be something smaller than this, it excites that pestilent fever which the French denominate mal des ardens, and in the present work is described under the names of PESTIS *erythematica*†; while in a quantity still smaller and long continued, it seems to spend itself almost entirely on the extremities as being the weakest part of the body, and to produce that species of GANGRÆNA, which is here denominated *ustilaginea*, or MILDEW MORTIFICATION ‡.

In what proportion taken.

It is hence a very acrid irritant, and from its peculiar tendency to stimulate the hypogastric viscera, seems often, in minute quantities, to prove a powerful emmenagogue. For this purpose an ounce of spurred rye is boiled down

* Archives Générales de Médicine, &c. in Rem.

† Vol. III. Cl. III. Ord. III. Gen. IV. Spec. I.

‡ Vol. III. Cl. III. Ord. IV. Gen. XII. Spec. II.

in a quart of water to a pint: half of which is usually taken in the course of the day, both in obstructed and difficult menstruation, and continued for three or four days. The symptoms said to be produced are head-ache, increased heat, and occasional pain in the hypogastrium, succeeded by a free and easy flow of the menstrual fluid. Advantage has been taken of this effect on another occasion, for the same medicine has been prescribed in lingering labours, and we are told, by Dr. Bigelow, with the best success, as good forcing pains are hereby very generally produced speedily *. In this case Dr. Bigelow, instead of a decoction of spurred rye, prefers giving the crude powder, to the amount of ten grains to a dose. Dr. Chapman indeed regards this medicine as chiefly, if not solely, useful in expediting labour-pains: for while he asserts that "to the uterus its whole force seems to be exclusively directed, and believes it to be highly beneficial in floodings and other uterine hemorrhages," he tells us that in repeated trials he has found it of only slender power as an emmenagogue †.

GEN. I. SPEC. II. Paramenia difficilia. Laborious menstruation. Treatment.

We have hitherto regarded the spur in spurred rye, and other grain, as a clavus or species of ustilago. It was formerly, however, conceived to be a disease of the grain itself. M. Decandolle has since described it as a variety of champignon, under the name of sclerotium, from its rendering the grain hard and horny. And M. Virey, in a work reported upon by M. Desfontaines, to the Academy of Sciences of the French Institute in 1817, has still more lately endeavoured to revive the obsolete opinion, by contending that it is a specific disease of the plant under which the grain is rendered, not properly speaking, hard and horny, as is actually the case when infested with the sclerotium, but rather friable and easily detached.

Nature of the spur in rye in some measure unsettled. Sclerotium of Decandolle.

A disease of the plant according to Desfontaines.

There is something highly plausible and ingenious in the plan that was at one time tried rather extensively, of compressing the crural arteries by a tourniquet, and thus

Compression of the crural arteries by the tourniquet

* New England Journ. of Med. and Surg. Vol. v. No. II.

† Therapeutics, &c. Vol. II. p. 19. 8vo. Philadelphia.

GEN. I. SPEC. II. Paramenia difficilis. Laborious menstruation. Treatment.

gorging the organs that lie above, and are supplied from collateral branches. By compressing the jugular veins we can easily gorge the head, and endanger extravasation and apoplexy. But it appears upon trial, that the tide thus dammed up in the case before us, is thrown back upon too many organs to produce any very sensible effect upon the uterus. Independently of which the uterus is not like the brain, exactly inclosed in a bony box that prohibits a general and equable dilatation of its vessels. In six cases in which Dr. Home made experiment of this remedy, he succeeded but once; and others have been less successful still *.

plausible, but has not generally succeeded.

Obstructed menstruation sometimes a local affection and to be remedied only by local means.

Impeded menstruation is sometimes, however, a disease strictly local, and proceeds from the obstruction of the passage by a polypus or other tumour, or an imperforate hymen. In all these cases it is obvious that the cure must depend upon a removal of the local cause.

Emetics useful in suppressed but not in retained menses.

Emetics have often been recommended; they rouse the system generally, but have not often been found useful in retention of the menses: though when employed in cases of suppression, and especially at the regular periods of return, or so as to anticipate such return by a few days, they frequently prove a valuable adjunct. If this period be passed by without any salutary effect, and particularly, if, at the same time, the system labour under symptoms of oppression in the head or chest, venesection to the extent of from four to six ounces of blood will be found a very useful palliative, and will have a tendency to keep up that periodical habit of depletion which will probably prove advantageous against the ensuing lunations. Venesection will also be found useful, and often absolutely necessary where the suspension has suddenly taken place during the flow of the catamenia, from cold, depressing passions, fright, or indeed any other cause.

Venesection when useful.

Particular treatment of Spec. II. or difficult menstruation. The stimu-

In treating the SECOND SPECIES of paramenia, or difficult menstruation, the stimulant part of the process we have thus far recommended must be sedulously abstained from,

* Hamilton, Edin. Com. Vol. II. Art. 31. Weiz ad Fabric. IV. 98.

Paramenia difficilis. Laborious menstruation. Treatment.

but the rest may be followed with advantage. Every thing, indeed, that has a tendency to produce local excitement, and in this respect the conjugal embrace itself, where the patient is married, must be systematically abstained from. The diet must be plain and inirritant, and the bowels be kept cautiously open with neutral salts or other cooling aperients. And, to allay the strong spasmodic action on which the severe pains in the lumbar and hypogastric regions depend, it will be found highly advantageous, a short time before the expected return of menstruation, to employ relaxants, and especially local relaxants; and of these, one of the best and pleasantest is the hip-bath, which operates directly upon the diseased quarter, and has a tendency to produce the desired effect without weakening the system generally. The ease and comfort of this valuable contrivance is acknowledged by almost all who have had recourse to it. Mårtini and various other writers recommend the cold bath in preference to the hot, and Tissot represents the latter as injurious. But this is to speak without due discrimination. That the cold-bath has been found of use in some instances is unquestionable: but only where there has been such a degree of energy in the constitution as to produce a re-action correspondent to the antecedent rigor. The direct effect of the cold-bath is to constringe, and consequently where a spastic contraction exists already, as is mostly the case from local or constitutional debility, to increase the evil. But where the constitution is naturally robust, and but little inroad has hitherto been made upon its strength, the latent energy of the system is capable of resisting the sudden shudder; an increased action, and consequently an increased and glowing heat ensue; the repelled fluids are forced forward; the blood flows more briskly; the mouths of the capillary vessels give way in every direction; the muscular fibres lose their rigidity, and the suppressed secretions, of whatever kind, recommence. And, hence it is, that cold-bathing may sometimes be serviceable in the disease before us, and warm-bathing less useful; but these cases are rare, and warm-bathing is mostly to be preferred.

Irritant part of the preceding process to be carefully abstained from: as well as every other excitement.

Cooling laxatives.

Local relaxants.

Hip-bath.

Cold-bath; its different effects explained: and hence its use and abuse.

GEN. I. SPEC. II. Paramenia difficilis. Laborious menstruation. Treatment.

Even the hip-bath, however, though it mitigates the pain, occasionally does nothing more; there is the same paucity of discharge, the same intermixture of coagula, and the same tendency to a return of the disease. In such cases, it has been common to abstract eight or ten ounces of blood from the loins by cupping, antecedently to the use of the bath: and this, by diminishing the spastic constriction, has, at times, diminished in a still greater degree the distressing pain. But I do not think the hip-bath is in general had recourse to early enough to give it all the beneficial effect it may be made to possess. Instead of waiting till the periodical pains return, as is the common practice, I have found it more advantageous to anticipate this period, and to relax the vessels by employing it for two or three nights before the pains are expected. And where in this and every other way it has failed, or the patient from great delicacy of constitution has appeared too much exhausted by its use, I have availed myself of the same relaxant power in another way, and, with a like anticipation, have prescribed the use of a broad folded swathe of flannel wrung out in hot water, to be applied round the loins and belly at the time of going to rest, and bound over with a linen swathe of equal width, as already recommended in peritonitis and hepatitis. The whole should be suffered to remain till the morning, by which time the warmth of the body will be usually found to have evaporated all the moisture, though the skin will still be dewy with perspiration from so powerful a sudorific. I have often found this plan succeed still better than the hip-bath; and have never known the patient catch cold, or complain of any chilly sensation from the use of the epithem.

Often necessary to premise bleeding by cupping glasses applied to the loins. Hip-bath in general not employed early enough.

Moistened flannel-swathe worn through the night has often succeeded where the hip-bath has failed.

SPECIES III.

PARAMENIA SUPERFLUA.

Superfluous Menstruation.

CATAMENIA EXCESSIVE, AND ACCOMPANIED WITH HEMORRHAGE FROM THE MENSTRUAL VESSELS.

GEN. I. SPEC. III. The nature of this species the reverse of the preceding.

THIS species offers us a disease precisely the reverse of the last, not less in the facility with which the mouths of the vessels give way, than in the quantity of the discharge. It exhibits the two following varieties:

α Reduplicata. Reduplicate menstruation.	Excessive from a too frequent recurrence.
β Profusa. Profuse menstruation.	Excessive from too large a flow at the proper periods.

Menorrhagia, what.

How distinguished by Cullen from metrorrhagia.

The SECOND VARIETY, or PROFUSE MENSTRUATION, is often technically distinguished by the name of menorrhagia. It is, in effect, the menorrhagia rubra of Cullen, who makes it a distinct affection from metrorrhagia or hemorrhagia uteri, by confining the latter term to a signification of hemorrhage from other vessels of the uterus than those concerned in separating and discharging the catamenial flux.

How to decide when the quantity discharged is in morbid excess.

We have already observed that we cannot lay down any general rule to determine the exact quantity of fluid that ought to be thrown forth at each lunation, some individuals secreting more and others less; and the measure varies from four to eight or ten ounces. We can only, therefore, decide that the quantity is immoderate and morbid when it exceeds what is usually discharged by the individual, or when it is associated with unquestionable symptoms of debility, as paleness of the face, feebleness

Gen. I. Spec. III. Paramenia superflua. Superfluous menstruation.

of the pulse, unwonted fatigue on exercise; coldness in the extremities, accompanied with an edematous swelling of the ancles towards the night; pain in the back in an erect posture; and various dyspeptic affections.

Either variety may be entonic or atonic.

Either of the varieties may be entonic or atonic, or, in common language, active or passive: but in the first there is usually a greater degree of local irritability than in the second, so that the secernents are excited, or the extremities of the minute blood-vessels open upon very slight occasions.

The first how distinguished from the second.

As the disease may occur under these two different states of body, it may proceed, as Dr. Gulbrand has observed, from an increased impetus in the circulation, a relaxed state of the solids, or an attenuate state of the fluids*: to which he might have added uterine congestion.

Causes in an entonic habit.

Increased impetus usually indicates great robustness of constitution, or an entonic habit, and is not unfrequently connected with uterine gestation; and the accidental causes are, in many cases, cold, a violent shock or jar, or an accidental blow. Under this form the disease commonly yields to venesection, cooling laxatives, and quiet.

Causes in an atonic habit.

Superfluous menstruation from atony, or in other words, a relaxed state of the solids, and an attenuate state of the fluids, frequently arises from repeated miscarriages or labours, poverty of diet, and an immoderate indulgence in sexual pleasure.

Proceeds often from a life of indolence and enervating luxury.

It often proceeds, also, and especially in the higher ranks, from a life of indolent ease, and enervating luxury, producing what we have denominated atonic plethora, lax vessels easily distended by a current of blood superfluous in quantity but loose and unelaborate in crasis, and which is reproduced, and perhaps still more abundantly but at the same time still more loosely, as soon as the excess is attempted to be removed by bleeding.

Venesection here mischievous: and every luxurious excess should be restrained.

Here, therefore, venesection is almost sure to do mischief; we must restrain every luxurious excess as far as it may be in our power, and we may have authority enough to insure a compliance, which is not always the case; we must employ, at the same time, the milder tonics with as-

Mild tonics

* De Sanguine Uterino. 8vo. Havn. 1778.

tringents, as kino, catechu, or sulphate of zinc, and carefully guard against costiveness by cool unirritating laxatives. The rhatany root appears also on the authority of Dr. Rath, of Nordhausen, to have been peculiarly serviceable in many cases, and particularly in the form of decoction; an ounce being boiled for ten minutes in half a pint of water lightly covered*. If the discharge be very considerable, astringent injections of cold water, or, which will commonly be found better, of a solution of alum or zinc, or cold water with a third part of new port wine, should be had recourse to without fail; or the vagina may be closely plugged up with a sponge, confined with a proper bandage. Early hours are of especial importance, with a due intermixture of moderate exercise, and the use of cold sea-bathing. The Cheltenham waters, as those also of many other chalybeate springs, have often proved serviceable, partly from their own medicinal powers, and partly from the greater purity of air and increase of exercise with which a temporary residence at a watering-place is usually accompanied.

with astringents, and occasionally unirritating laxatives.

General tonic regimen.

Astringent injections. Plugging the vagina.

It is a common observation, in moral as well as in physical philosophy, that extremes meet in their effects, or produce like results. There is, perhaps, no part of natural history in which this is more frequently exemplified than in the sphere of medicine. In the case of apoplexies and palsies, as well as various other diseases, we have had particular occasion to make this remark: and in the genus immediately before us, as well as others closely connected with it, we have another striking instance of its truth. "The proportion of the diseases peculiar to the female sex in the hospital," says Sir Gilbert Blane, speaking from tables accurately kept by himself for this purpose, "is the same as in private cases; from which it would appear that the unfavourable influence of indolent habits, excessive delicacy, and sensibility of mind and body in the upper ranks, compensate for the bad effects of hard labour and various privations in the lower orders."

The disease equally common to rich and poor: explained.

* Hufeland's Journal der practischen Heilkunde, Jan. 1819.

SPECIES IV.

PARAMENIA ERRORIS.

Vicarious Menstruation.

CATAMENIA TRANSFERRED TO, AND EXCRETED AT, REMOTE ORGANS.

GEN. I. SPEC. IV. Extensive sympathy maintained by the sexual organs with every part.

Whence, on obstruction almost every organ offers a vicarious outlet: as the eyes, nostrils, sockets of the teeth, ears, nipples, stomach, bladder, navel, and skin generally.

WE have already observed upon the extensive sympathy which the sexual organs maintain with every other part of the system. With the exception of the stomach, which is the grand centre of sympathetic action, there is no organ, or set of organs, possessed of any thing like so wide an influence. And hence, where, from any particular circumstance, as sudden fright or cold, the mouths of the menstrual vessels become spasmodically constricted at the period of menstruation, and the fluid is not thrown forth, almost every organ seems ready to offer it a vicarious outlet. We have accounts, therefore, of its having been discharged, by substitution, from the eyes, the nostrils, the sockets of the teeth, the ears, the nipples, the stomach, the rectum, the bladder, the navel, and the skin generally, as noticed more fully in the volume of Nosology to which the reader may turn at his leisure.

Hardly an organ from which the fluid has not been discharged.

Singular illustration.

In effect, there is scarcely an organ of the body from which it has not been discharged under different circumstances*. In the Edinburgh Medical Essays is a very singular case of its being thrown forth from an ulcer in the ancle of a young woman little more than twenty years of age, and which continued to flow at monthly periods, for two or three days at a time, for about five years: after

* Eph. Nat. Cur. passim. Act. Nat. Cur. Act. Med. Berol.—Bertholin. Obs. passim. Cent. passim.—Bierling. Thes. Pract.—Sennertus Pract. et Paralip. Lib. IV.—Sennertus, Pract. et Paralip. Lib. IV.

which, some part of the bone having separated in a carious state, the ulcer assuming a more healthy appearance, and the body becoming plumper and stronger, the vicarious outlet was no longer needed, and the menstrual tide returned to its proper channel *.

Gen. I. Spec. IV. Paramenia erroris. Vicarious menstruation.

In all these cases there is a considerable degree of uterine torpitude, and commonly of general debility: while the part forming the temporary outlet is in a state of high irritability or other diseased action. And hence the remedial process should consist in allaying the remote irritation, strengthening the system generally, and gradually stimulating the uterus to a state of healthy excitement by the means already recommended.

Uterine torpitude and general debility always present in these cases.

SPECIES V.

PARAMENIA CESSATIONIS.

Irregular Cessation of the Menses.

CATAMENIAL FLUX IRREGULAR AT THE TERM OF ITS NATURAL CESSATION; OCCASIONALLY ACCOMPANIED WITH SYMPTOMS OF DROPSY, GLANDULAR TUMOURS, OR SPURIOUS PREGNANCY.

Gen. I. Spec. V. Sexual organs last completed and first exhausted.

The set of organs that are most tardily completed and soonest exhausted are those of the sexual system. They arrive latest at perfection and are the first to become worn out and decrepit. In this early progress to superannuation the secretory vessels of the uterus grow torpid, and, by degrees, the catamenial flux ceases. This cessation, however, has sometimes been protracted to a very late period, and, in a few rare instances, the menses have continued

Time of cessation varies in different constitutions:

* Art. by Mr. James Calder, Vol. III. Art. xxix. p. 341.

GEN. I. SPEC. V. Paramenia cessationis.

Irregular cessation of the menses.

nearly, or altogether, through the whole term of life: we have examples of it, noticed in the volume of Nosology, at seventy, eighty, and even ninety years of age; but the usual term is between forty and fifty, except where women marry late in life, in which case, from the postponement of the generative orgasm, they will, occasionally, breed beyond their fiftieth year. On approaching the natural term of the cessation of the menses, the sexual organs do not always appear to act in perfect harmony with each other, and perhaps, at times, not even every part of the same organ with every other part. In proof of the first remark, we seem, occasionally, to meet with a lingering excitement in the ovaria, after all excitement has ceased in the uterus: and we have hence a kind of conceptive stimulation, a physcony of the abdomen, accompanied with peculiar feelings, and peculiar cravings, which mimic those of pregnancy, and give the individual room to believe she is really pregnant, and the more so in consequence of the cessation of her lunar discharge, while the uterus takes no part in the process, or merely that of sympathetic irritation, without any change in size or structure.

has not taken place before eighty or ninety.

Usual period between forty and fifty.

Cessation how rendered a disease.

Sometimes accompanied with a vain sense of pregnancy, and many of its symptoms.

On the contrary, we may chance to find the uterus itself chiefly, if not solely, affected with irregular action at this period: evincing, sometimes a suppression of menstruation for several months, sometimes a profuse discharge at the proper period, and sometimes a smaller discharge returning every ten or twelve days, often succeeded by leucorrhœa. And not unfrequently the system associates generally in the misaffection, and suffers from oppression, head-ache, nausea, or universal languor.

Sometimes great irritation of the uterus, and irregular menstruation.

The period requires a careful watch. Palliative treatment.

All these are cases that require rather to be carefully watched, than vigorously practised upon; and the character of an expectant physician, as the French denominate it, is the whole that is called for. The prime object should be to quiet irregular local irritation wherever necessary, by gentle laxatives, moderate opiates, or other narcotics, and to prevent any incidental stimulus, mental emotion, or other cause, from interfering with the natural inertness into which the sexual system is progressive-

ly sinking. Hence the diet should be nutritive but plain; the exercise moderate; and costiveness prevented by lenient, but not cold eccoproctics: aloes, though most usually had recourse to, from its pungency, in earlier life, is one of the worst medicines we can employ at this period, as the Epsom salts, warmed with any pleasant aromatic, is, perhaps, one of the best.

Bleeding how far to be indulged.

If the constitution be vigorous and plethoric, and particularly if the head feel oppressed and vertiginous, six or seven ounces of blood may, at first, be taken from the arm; but it is a practice we should avoid if possible, from the danger of its being necessarily resorted to again, and at length running into an inconvenient and debilitating habit.

Mammæ often in a state of irritation from sympathy: and hence, occasionally cancers.

The mammæ that constantly associate in the changes of the uterus and constitute a direct part of the sexual system, are at this time, also, not unfrequently in a state of considerable irritation; and if a cancerous diathesis be lurking in the constitution, such irritation is often found sufficient to excite it into action. And hence, the period before us is that in which cancers of the breast most frequently show themselves.

Stock of sensorial power hereby redundant, scattered over the system in different ways.

From the natural paresis into which this important and active system is hereby thrown, a certain surplus of sensorial power seems to be let loose upon the system, which operates in various ways. The ordinary and most favourable mode is that of expending itself upon the adipose membrane generally, in consequence of which a larger portion of animal oil is poured forth, and the body becomes plump and corpulent. The most unfavourable, next to the excitement of a cancerous diathesis into action, is that of irritating some neighbouring organ, as the spleen, or liver, and thus working up a distressing parabysma or visceral turgescence; or deranging the order of the stomach, and laying a foundation for dyspepsy.

Sometimes generally and producing corpulency.

Sometimes locally and inducing a tumid liver or other organ.

GENUS II.

LEUCORRHŒA.

Whites.

MUCOUS DISCHARGE FROM THE VAGINA, COMMONLY WITHOUT INFECTION; DISAPPEARING DURING MENSTRUATION.

GEN. II. Origin of the generic term.

THE term leucorrhœa from λευκὸς, "white," and ῥέω, "to flow," is apparently of modern origin; as it is not to be found in either the Greek or Roman writers; and seems first to have been met with in Bonet or Castellus.

Menorrhagia alba of Cullen.

This is the menorrhagia *alba* of Dr. Cullen, so denominated because he conceives the evacuation to flow from the same vessels as the catamenia; as also that it is often joined with menorrhagia, or succeeds to it. Its source, however, is yet a point of dispute *; Stoll †, Pinæus, and various other distinguished writers have ascribed it, like Cullen, to the uterus. But as it occurs often in great abundance in pregnant women, in girls of seven, eight, and nine years of age ‡, and even in infants, it has been supposed by Wedel §, and most writers of the present day, to flow from the internal surface of the vagina, or at the utmost, from the vagina jointly with the cervix of the uterus. Morgagni is, perhaps, most correct, who conceives, and appears, indeed, to have proved by dissections, that, in different cases, the morbid secretion issues from both organs; for he has sometimes found the uterus exhi-

Source of the discharge a point of dispute.

Probably flows from both the vagina and cervix of the uterus.

* Rat. Med. P. VII. p. 155. † De Notis Virginitatis, Lib. I. Prob. 8.

‡ Heister, Wahrnemungen, B. II. N. 128.—Hoechstatter, Obs. Med. Dec. IV. Cas. I. Schol.

§ Diss. De Fluore albo. Jen. 1743.

biting in its internal surface whitish tubercles, tumid vessels, or some other diseased indication, and sometimes the vagina, during the prevalence of this malady*. Frank affirms that he has occasionally, on dissection, traced it issuing from the Fallopian tubes†. In the case narrated by Mr. Hill, of Dumfries, and noticed under the preceding genus, it was evidently confined to the vagina alone‡.

GEN. II. Leucorrhœa. Whites.

From its frequency in Sweden, Riedlin conjectures it to be endemic there§: but this can hardly be allowed, and there are more obvious causes to which such frequency may be referred.

Said to be endemic, but without sufficient authority.

When first secreted it is bland and whitish, but differs in colour and quality under different circumstances, and hence affords the three following species:

Qualities.

1. LEUCORRHŒA COMMUNIS. COMMON WHITES.
2. ——————— NABOTHI. LABOUR-SHOW.
3. ——————— SENESCENTIUM. WHITES OF ADVANCED LIFE.

SPECIES I.

LEUCORRHŒA COMMUNIS.

Common Whites.

THE DISCHARGE OF A YELLOWISH-WHITE COLOUR, VERGING TO GREEN.

THIS species is the fluor albus of most writers: the medorrhœa fœminarum insons of Professor Frank. It is found in girls antecedently to menstruation, or on any

GEN. II. SPEC. I. Fluor albus of most writers.

* De Sed. et Caus. Morb. Ep. XLVII. Art. 12. 14. 16. 17. 18. 19. 27. Ep. LXII. Art. 14.

† De Cur. Hom. Morb. Epit. Tom. v. p. 177. Mannh. 8vo. 1792.

‡ Edinb. Med. Comment. IV. p. 91. § Lin. Med. 1695. p. 164.

GEN. II. SPEC. I. Leucorrhœa communis. Common whites.

simple local irritation in the middle of life, and hence also, as just observed, during pregnancy. It is said in the Berlin Transactions to be occasionally contagious *: and I have met with various cases which seem to justify this remark.

Description. Causes.

It has occurred as the result of suppressed menstruation: as it is asserted also to have done on a suppressed catarrh †; and chillness or suppressed perspiration of the feet ‡. Local irritations moreover are frequent causes. And hence one reason of its being an occasional concomitant of pregnancy; as also of its being produced by pessaries injudiciously employed, by voluptuous excitements, and uncleanliness. It is said at times to exist as a metastasis, and particularly to appear on a sudden failure of milk during the period of lactation; a failure which may be set down to the list of suppressed discharges §. Jensen gives a singular case of leucorrhœa that alternated with a pituitous cough ‖. It is most frequently found among the weakly and delicate of crowded cities and humid regions, of a cachectic habit, and who use but little exercise; especially about the age of puberty, or who, being married, have borne too numerous a family, or been pregnant in too quick a succession. It is also found among the barren, those who cruelly forbear to suckle their own offspring, or who menstruate too sparingly ¶.

Produced by metastasis.

Has alternated with other complaints.

Where chiefly found.

Symptoms and progress.

It is usually accompanied with a sense of languor, and a weakness or pain in the back. And if it become chronic, or of long continuance, the countenance looks pale and unhealthy, the stomach is troubled with symptoms of indigestion, the skin is dry and feverish, and the feet edematous.

The discharge, in its mildest form, is slimy, nearly colourless, or of an opaline hue, and unaccompanied with local irritation. It afterwards becomes more opake and

* Act. Med. Berol. Dec. I. Vol. V. p. 85.

† Act. Erud. Lips. 1709, p. 376.—Raulin, Sur les Fleurs blanches, p. 329.

‡ Act. Nat. Cur. Vol. VIII. Obs. 98.

§ Astruc, De Morb. Mulier. Lib. I. cap. 10.

‖ Prod. Act. Havn. p. 160.

¶ J. P. Frank, De Cur. Hom. Morb. Epit. Tom. V. p. 176.

Leucorrhœa communis. Common whites.

muculent, and is accompanied with a sense of heat, and itching or smarting; in this stage it is of a yellowish-white. But as the disease advances in degree it appears greenish, thinner, more acrid, and highly offensive, and is apt to excoriate the whole surface of the vagina: while there is often a considerable degree of pain in the uterus itself and even in the loins.

How distinguishable from blenorrhœa.

Among novices there is some difficulty in distinguishing the discharge of whites from that of blenorrhœa, which we shall describe presently. But though the appearance of the two fluids is often similar, they may easily be known by their accompanying signs. In blenorrhœa there is local irritation from the first, and this irritation extends through a considerable part of the meatus urinarius, so as to produce a considerable pain in making water; symptoms which are not found in leucorrhœa. There is also from the first in the former a swelling of the labia, a more regular though a smaller secretion, and of a more purulent appearance.

Constitutional mischief, when violent.

When the disease is violent, or of long continuance, it leads to great general as well as local debility, so as in some instances to make sad inroads on the strength of the constitution. It has sometimes been followed by a prolapse of the uterus or vagina*; by abortion or miscarriage, where there is pregnancy; and by barrenness, where no pregnancy has occurred. When it acts on the system at large, it has given rise to cutaneous eruptions of various kinds†; and is said to have introduced tabes and hectic fever‡, dropsy, scirrhus, and cancer§.

Medical treatment.

The cure is often difficult: but it is of no small importance to be, from the first, fully acquainted with the nature of its cause and character, for the proper means to be pursued will mainly depend upon this. And hence it will often be necessary to examine the organs themselves, or to entrust the examination to a nurse on whose judgement we can fully depend.

* Boehman, Diss. de Prolapsû et Inversione Uteri. Hal. 1745.

† Klein, Interpres Clinicus, p. 112. ‡ Hippocr. Aph. Sect. v.

§ Raulin, Sur les Fleurs blanches, Tom. I. passim.—Frank, ut supr. p. 182.

GEN. II. SPEC. I. Leucorrhœa communis. Common whites.

If the cause be uncleanliness, a lodgement of some portion of a late menstrual flux, or any other actuating material in the vagina, nothing more may be necessary than frequent injections of warm water: or if the vagina itself be much irritated, injections of the diluted solution of the acetate of lead: which last will often, indeed, be found highly serviceable where the discharge proceeds from debility and relaxation produced by a severe labour or miscarriage, forming no uncommon causes: as they are also no uncommon effects.

Local remedies.

Injections of warm water or diluted solution of acetate of lead.

Other astringent injections.

Other astringent injections have often been tried, as green tea, a solution of alum, or sulphate of zinc, a decoction of pomegranate bark, or a solution of catechu. All these are sure to be of service as tending to wash away the discharge, and keep the parts clean; and in many cases they will also succeed as astringents: nor is it always easy to determine which is to be preferred, for in some cases one answers the purpose best, and in others another.

Fume of sulphur.

Sir Kenelm Digby recommended a local application of the fume of sulphur *, which may be communicated in various ways; and so far as this has a tendency to change the nature of the morbid action, by originating a new excitement, it is worthy of attention; but perhaps the diluted aqua-regia bath, of which we have spoken under spasmodic jaundice †, may prove more advantageous.

Aqua-regia bath.

Treatment.

The disease, however, is often highly troublesome and obstinate, and hence it has been necessary to employ constitutional as well as local means.

Disease often troublesome and obstinate.

General remedies.

Acids.

The general remedies that have been had recourse to are almost innumerable. Acids have been taken internally in as concentrated a state as possible, but rarely with much success. The sulphuric acid has been chiefly depended upon: and, in the form of the eau de Rabel, which is that of digesting one part to three of spirit of wine, it was at one period supposed to be almost a specific. The compound, however, has not been able to maintain its reputation, and has long sunk into disuse.

* Medic. Experiment, p. 65. † Icter. Spasmodic. Vol. I. p. 398.

Emetics have been found more useful, as operating by revulsion and stimulating the system generally: and on this ground a sea-voyage, accompanied with sea-sickness, has often effected a cure. Stimulating the bowels, and particularly in the commencement of the disease, and where the general strength has not been much encroached upon, has for the same reason been frequently found useful, as transferring the irritation to a neighbouring organ, and under a more manageable form. And one of the best stimulants for this purpose is sulphate of magnesia. Small doses of calomel have been given daily with the same view, but they have not succeeded in general. Heister, however, recommended mercury in this disease even to the extent of salivation *; yet this is a very doubtful remedy, and even under the best issue purchases success at a dear rate. A spontaneous salivation has sometimes indeed effected a cure†; but this is a very different affair, for here the blood is not broken down into a dilute state, nor the general strength interfered with. Mr. John Hunter, with a view of changing the nature of the morbid action in its own field, advised mercurial inunctions in the vagina itself.

Emetics.

Purgatives.

Mercury so as to produce salivation.

Mercurial inunction.

Other stimulants have been recommended that operate more generally, and have a peculiar tendency to influence the secretion of mucous membranes, as the terebinthinate preparations, particularly camphor, balsam of copaiba, and turpentine itself: and there is reason to believe that the second of these has often been useful. It has sometimes been employed in combination with tincture of cantharides: but the latter is, in most instances, too irritating, whether made use of alone, or with any other medicine.

Irritants of mucous membranes as the terebinthinate preparations.

Tincture of cantharides.

As the acids have not succeeded, neither have other astringents to any great extent. The argentina or wild tansey (Potentilla *anserina*, Linn.) was at one time in high favour; it was particularly recommended by M. Tourne-

Astringents.

Potentilla anserina: or wild tansey.

* Wahrnemungen. Band. II.

† Eph. Nat. Cur. Dec. III. Ann. IX. X. Obs. 140.

GEN. II. SPEC. I. Leucorrhœa communis. Common whites. Treatment. Alum. Kino. Rhatany root. Best general treatment.

fort, and, upon his recommendation, very generally adopted. Alum has been supported by a still greater number of advocates for its use; and kino has, perhaps, been employed quite as extensively. Dr. Cullen asserts that he has tried all these alone without success, but that by uniting kino and alum, as in the pulvis stypticus of the Edinburgh College, he obtained not only a most powerful astringent, but one that had occasionally proved serviceable in the present disease. The anserina has justly sunk into oblivion. The rhatany root is much better entitled to a trial in the form of a decoction, as already recommended in atonic paramenia *superfluo*: though, from its warmth, united with the quality of astringency, it is a still more promising remedy in the leucorrhœa of advanced life. Upon the whole, the best general treatment we can recommend is a use of the metallic tonics, and especially zinc and iron, in conjunction with a generous but temperate diet, exercise that produces no fatigue, pure air, and change of air, cold-bathing, regular and early hours, and especially a course of the mineral waters of Tunbridge or Cheltenham.

SPECIES II.

LEUCORRHŒA NABOTHI.

Labour-Show.

THE DISCHARGE SLIMY, AND MOSTLY TINGED WITH BLOOD.

GEN. II. SPEC. II. Synonyms. Where usually found.

IN this species the fluid is secreted by the glandulæ Nabothi situate on the mouth of the uterus, whence the specific name. It is the leucorrhœa *Nabothi* of Sauvages, and the hæmorrhagia *Nabothi* of Cullen. It is most usually

found as the harbinger of labour: and indicates that the irritation which stimulates the uterus to spasmodic and expulsory contractions, when the full term of pregnancy has been completed, or some accident has hurried forward the process, has now commenced, and that the pains of child-birth may be expected soon. It is probably nothing more than the usual fluid secreted by the glands from which it flows, augmented in quantity in consequence of temporary excitement, and mixed with a small quantity of blood thrown forth at the same time, and from the same cause, by the mouths of the exhalants which gives it, soon after its first appearance, a sanguineous hue. It is hardly entitled to the name of a hemorrhage, as given by Dr. Cullen, though blood from the uterus often succeeds to it, apparently thrown forth by anastomosis, in consequence of the violence of the pains.

GEN. II. SPEC. II. Leucorrhœa Nabothi. Labour-show. Probable source.

In its ordinary occurrence it is only worthy of notice, as a deviation from the common secretions of health, and is rather to be hailed than to become a subject of cure or removal. But there is a state of irritation to which these glands are sometimes subject that produces the same discharge, and in considerable abundance, for many weeks or months before labour, and which, for the comfort of the patient, requires a little medical advice and attention.

Sometimes chronic and troublesome.

The irritation may proceed from plethora and distention, or from a weak or relaxed state of the constitution. If from the former, venesection and gentle laxatives will prove the best course we can pursue: if from the latter, a reclined position, easy intestinal evacuations, and such sedatives as may sit most pleasantly on the stomach, and produce least disturbance to the head.

Mode of treatment

SPECIES III.

LEUCORRHŒA SENESCENTIUM.

Whites of advanced Life.

THE DISCHARGE THIN, ACRID, FREQUENTLY EXCORIATING AND FETID.

GEN. II. SPEC. III. Often connected with a morbid state of the uterus; especially cancer and a polypous fungus. Sometimes depends upon irritability of the uterus alone. Striking case in exemplification.

THIS is usually, but not always, connected with a morbid state of the uterus. It commonly shows itself on the cessation of the menses: and is often chronic and obstinate.

The more common diseases of the uterus with which the discharge is combined are an incipient cancer, or a polypous fungus. But I have occasionally met with it unconnected with either, and apparently dependent upon a peculiar and chronic irritability of the uterus, or rather perhaps of those glands which secrete the fluid that is poured forth during the act of sexual intercourse. A lady about forty years of age, not long ago applied to me, who had for more than a twelvemonth been labouring under a very distressing case of this kind. She had been married from an early period of life, but had never been pregnant. Her general health was good, her temper easy, her imagination peculiarly warm and vivid. She had no local pain, and had ceased to menstruate at the age of about thirty-eight. The discharge at the time I first saw her consisted of at least from a quarter to half-a-pint daily; thick, slimy, brownish, and highly offensive. Every external and internal remedy that could be thought of appeared to be of only temporary avail, and sometimes of no avail whatever, though she certainly derived relief from injections of the punica *Granatum*, with a fourth part

port wine, which for some time checked the discharge, and diminished the fetor. In the mean time, the general strength was preyed upon, the loins became full of pain, the appetite failed, and the sleep was disturbed. Accidental circumstances compelled her, even in this debilitated state, to undertake a voyage to India. During its progress she suffered severely from sea-sickness; but the change hereby produced, or effected by the warmth of the climate, proved peculiarly salutary: for she gradually lost the complaint, and recovered her usual health.

GEN. II. SPEC. III. Leucorrhœa senescentium. Whites of advanced life.

Emetics, change of climate, and the tonic plan already recommended under the first species, seem, hence, to be the best course we can pursue in the species before us.

General plan of treatment.

GENUS III.

BLENORRHŒA.

Gonorrhœa.

MUCULENT DISCHARGE FROM THE URETHRA, OR VAGINA; GENERALLY WITH LOCAL IRRITATION AND DYSURY; NOT DISAPPEARING DURING MENSTRUATION.

Gen. III. Origin of generic term.

Synonyms.

Unsettled use of the term gonorrhœa.

BLENORRHŒA is a Greek compound of modern writers, derived from βλεννὰ, "mucus", and ῥέω, "to flow". Sauvages, and after him Cullen, have employed gonorrhœa from γόνος, "semen", and ῥέω, as a common term for this and SPERMORRHŒA constituting the ensuing genus, and consisting in an evacuation of semen. Cullen, indeed, has extended the term still further in his First Lines, and hence morbid secretion of mucus, all kinds of venereal contagion and seminal flux, are equally arranged as species of the same generic disease; and this, too, under a word which imports the last alone. While, to add to the confusion, this very word, in its vulgar sense, is restrained to venereal contagion, which, in its strict meaning, that of seminal flux, it signifies just as much as it does abortion or stone in the bladder. It is high time to make a distinction, and to divide the list of Sauvages into two genera. Blenorrhœa has, indeed, been already employed of late by various writers to denote the first of these genera, and there is no necessity for changing the term.

The genus under Müller*, is subdivided into numerous

* Müller. Medic. Wochenblatt, 1784. N. 51, plures species.

species: but the three following include the whole that fairly belong to it: Gen. III. Blenorrhœa. Gonorrhœa.

1. BLENORRHŒA SIMPLEX. SIMPLE URETHRAL RUNNING.
2. ———— LUODES. CLAP.
3. ———— CHRONICA. GLEET.

SPECIES I.

BLENORRHŒA SIMPLEX.

Simple Urethral Running.

SIMPLE INCREASED SECRETION, FROM THE MUCOUS GLANDS OF THE URETHRA.

THIS definition is given in the words of Dr. Fordyce, and is sufficiently clear and expressive. In effect, the efflux proceeds from mere local irritation, unaccompanied by contagion, or virulence of any kind, and is chiefly found in persons in whom the affected organ is in a state of debility; the occasional causes of irritation being venereal excess, too large an indulgence in spirituous liquors, cold, topical inflammation, too frequent purging, violent exercise on horse-back, to which various authors add transferred rheumatic action*; and occasionally, according to Mr. John Hunter, transferred irritation of the teeth†. Gen. III. Spec. I. Efflux from simple local irritation. Causes.

The matter discharged is whitish and mild, producing no excoriation, pain in micturition, or other disquiet. It is the mild gonorrhœa of many writers, the gonorrhœa *pura* of Dr. Cullen; and usually yields without difficulty to rest, emollient injections, and very gentle and cooling purgatives.

* De Plaigne, Journ. de Med. Tom. LXXIV.—Richter, Chir. Bibl. B. IV. p. 508.—Ponteau, Œuvres Posthumes. I.

† Natural History of the Teeth.

SPECIES II.

BLENORRHŒA LUODES.

Clap.

MUCULENT DISCHARGE FROM THE URETHRA OR VAGINA, INTERMIXED WITH SPECIFIC VIRUS: BURNING PAIN IN MICTURITION: PRODUCED BY IMPURE COITION: INFECTIOUS.

GEN. III. SPEC. II. Commonly called virulent or malignant gonorrhœa.

THIS is a disorder of far greater mischief and violence than the preceding, and in contradistinction to it has been very generally denominated the virulent or malignant gonorrhœa. It is the gonorrhœa *impura* of Cullen.

Once supposed to be an effect of syphilis. How far it coincides with syphilis.

The disease was for many years supposed to be a local effect of that poison which, when communicated to the system, produces syphilis. It is in truth received in the same manner, and by the same organs—its medium of conveyance being that of cohabitation with an infected person. We are chiefly indebted to Mr. John Hunter for having pointed out the distinction; and there is now scarcely an individual in our own country who has any doubt upon the subject, though there are several who conjecture that it has been derived from the syphilitic venom changed and softened in its virulence by an introduction into different constitutions. These conjectures are harmless, but they have little ground for support.

Distinctive symptoms.

That it is a disease specifically different from syphilis, is clear from the following facts. Its appearance did not commence till more than a hundred years after that of syphilis; it will continue for months without any syphilitic symptoms, which are rarely, indeed, found connected with it; and where such symptoms have shown themselves, there has been full evidence of a new and different

infection or strong ground for suspicion: the matter of chancre, the pathognomic symptom of syphilis, when introduced into the urethra has been found not to produce clap, and the matter of clap inserted under the skin, has been proved not to produce syphilis: the common course of mercury which is the only specific cure for the latter, is a very inconvenient, and dilatory way of treating the former; while the local plan by which the former is conquered with great speed and ease, produces no effect on the latter. It is singular, therefore, that the old and erroneous doctrine of their being one and the same disease should still maintain its ground in France, as it appears to do from M. Sainte-Marie's late treatise, as well as various others, on this subject*.

Such symptoms not generally acknowledged in France.

Lagnean's hypothesis examined and replied to.

M. Lagnean, indeed, although he acknowledges that clap or gonorrhœa may have a different origin from syphilis, still endeavours to prove the identity of the former and chancres in the greater number of cases, from the fact that various females have been infected with both complaints by the same man, and various men by the same female†. But this will go no further than to show that the individual communicating both complaints was infected with both at the same time. What is so common as porrigo *galeata* or scalled-head co-existing with itch; or dysentery with bilious fever, measles, or any other epidemic that may be prevalent together with itself? It is very possible, indeed, that in a few habits or idiosyncrasies of great acritude, the matter of gonorrhœa may produce chancres or other local sores, or even be followed by constitutional symptoms very closely mimicking those of syphilis: for, when treating of this last disease, we shall have to show that such mimickry of symptoms frequently takes place from other impure and local irritants, and with so near a resemblance as to be distinguished with great difficulty from the disease it seems to copy. We have already pointed out the distinctive characters of the malady

Simulated symptoms of syphilis may perhaps, though rarely, spring from gonorrhœa.

As they do from other local irritants.

* Méthode pour guerir les Maladies Vénériennes invéterées, &c. Paris, 1818.

† Exposé des Symptomes de la Maladie Vénérienne. Paris, 1815.

GEN. III. SPEC. II. Blenorrhœa luodes. Clap.

before us and syphilis: and it is sufficient to observe further that the anomalous symptoms, if they ever follow upon genuine clap, occur not in the ordinary course of its march, but as extreme exceptions to its established habits. and are not to be found once in ten thousand examples.

Some of these distinctions known and acted upon before the time of J. Hunter.

Some of these facts indeed were known to physiologists and reasoned from even before the time of Mr. John Hunter; and hence Baglivi contended that virulent gonorrhœa, as it was then called, may be produced by other acrimonies than the syphilitic *, while Zeller, towards the close of the seventeenth century affirmed that it may originate in either sex without contact†; and Stoll in the middle of the eighteenth, that it proceeds from various causes of which syphilitic contagion is one‡. It is due to the merits of Dr. Balfour to observe that he made the distinction between syphilis and gonorrhœa, the ground of his inaugural dissertation at Edinburgh in 1767, which was nineteen years before the publication of Mr. Hunter's celebrated work.

Pathology.

It is not easy to account for the primary appearance of this or of any other specific poison: but we see daily that most, perhaps all, mucous membranes, under a state of some peculiar morbid action, have a tendency to secrete a virulent and even contagious material of some kind or other; the particles of which are in some instances highly volatile, and capable of communicating their specific effect to organs of a like kind; and of propagating their power by assimilation, after having been diffused to some distance through the atmosphere, which does not at all times readily dissolve them; though, agreeably to a general law we have formerly pointed out, the more readily the purer the constitution of the atmosphere§. We have a manifest proof of this in the muculent discharge of dysentery, in canine catarrh or the muculent affection in the nostrils of dogs, which is vulgarly called distemper, and in the glanders, possibly also in the farcy, of horses.

Compared with the discharge from dysentery;

canine catarrh:

glanders, farcy:

* De Fibrâ Motice, &c.

† Diss. de Gonorrhœâ utroque sexû, Tubing, 1700.

‡ Prælect. p. 104.

§ Vol. II. Corol. 9. p. 85.

And although that species of catarrh which we name influenza, is probably a miasm rather dependent on some intemperament of the atmosphere itself in its origin, than on the temperament of the individual who suffers from it; yet this also becomes a contagion in its progress, and is communicable in consequence of such new property, from individual to individual, after a removal into fresh and very remote atmospheres by travelling*: whilst nothing can be more highly contagious than the discharge from the mucous glands of the tunica conjunctiva in purulent ophthalmy, although possibly the matter of this contagion dissolves rapidly in the atmosphere, or is not sufficiently volatile to float in it; whence a direct contact is necessary for the production of its effect.

GEN. III. SPEC. II. Blenorrhœa inodes. Clap.

purulent ophthalmy.

In like manner, leucorrhœa, as we have already observed, has sometimes seemed to be contagious; for I have occasionally found a kind of blenorrhœa produced in men, accompanied with a slight pain in the urethra, and some difficulty in making water, upon cohabitation with women who, upon inspection, had no marks whatever of inodic blenorrhœa, or clap; and, in some instances, indeed, were wives and matrons of unimpeachable character.

Leucorrhœa.

The disease before us, however, has symptoms peculiar to itself, and undoubtedly depends upon a specific virus. The chief of these symptoms are described in the definition. They are generally preceded by a troublesome itching in the glans penis, and a general sense of soreness up the whole course of the urethra: soon after which the discharge appears, on pressing the glans, in the form of a whitish pus oozing from its orifice. In a day or two it increases in quantity, and becomes yellowish; and, as the inflammation augments, and the disorder grows more virulent, the yellow is converted into a greenish hue, and the matter loses its purulent appearance, and is thinner and more irritant. The burning or scalding pain that takes place on making water, is usually seated about half

Clap has specific symptoms and a specific virus.

Symptoms described.

* See Catarrhus epidemicus of this work, Vol. II. Cl. III. Ord. II. Gen. IX. Spec. II.

GEN. III. SPEC. II. Blenorrhœa luodes. Clap.

an inch within the orifice of the urethra, at which part the passage feels peculiarly straitened or contracted, whence the urine flows in a small, interrupted stream: the lips of the urethra are thickened and inflamed, and a general tension is felt up the course of the penis. This last symptom is sometimes extremely violent, and accompanied with involuntary erections; at which time, as the frænum, in consequence of the inflammation, has lost its freedom of motion, the penis is incurvated with intolerable pain. It is to this state of the penis, in which it bears some resemblance to a hard, twisted cord, that the French have given the name of CHORDEE. Under these circumstances we often meet with a troublesome phimosis, either of the strangulating, or incarcerating kind; in consequence of the increased spread of the inflammation. Sometimes it extends to one or both groins, in which case the glands swell and buboes are often formed; sometimes it reaches to the bladder, the surface of which pours forth a cheesy or wheyey fluid instead of its proper lubricous secretion, which is communicated to the urine; and sometimes the testes participate in the inflammation, become swollen and painful, and excite a considerable degree of fever.

Disease less severe in women than in men and why.

In women, the chief seat of affection is the vagina; but as this is a less sensible part than the urethra, the pain is seldom so pungent, except when the meatus urinarius and the nymphæ associate and participate in the inflammation.

Interval from the time of infection.

The disease appears at very different intervals after infection, according to the irritability of the constitution. The usual time is about the fourth or fifth day. But it has shown itself within the first twenty-four hours, and has sometimes continued dormant for a fortnight. Domeier lays down the time from the fourth to the fourteenth day *. Plenciz fixes it after the tenth †. Sometimes by the violence of the irritation the secretion is absorbed as fast as it is effused: so that only a very small discharge

* Fragmente über die Erkenntnis venerischer Krankheiten. Hanov. 1790.

† Acta, et Observationes, Med. p. 139.

takes place, while the other symptoms are peculiarly exasperated. To this state of the disease some practitioners have applied the very absurd name of *gonorrhœa sicca.*

GEN. III. SPEC. II. Blenorrhœa luodes. Clap.

Gonorrhœa sicca.

It was at one time imagined that the puriform fluid which is usually poured forth in considerable abundance, proceeds from an ulcer in the urethra: but it is now well known, as we have already had occasion to observe frequently, that it is not necessary for an ulcer or an abscess to exist for the formation of pus, and the dissection of persons who have died while labouring under this disease, have sufficiently shown that the secretion is thrown forth from the internal membrane of the urethra, chiefly at the lacunæ, without the least appearance of ulceration, or even, in most instances, of excoriation.

Puriform fluid thrown forth, does not proceed from an ulcer:

but is secreted from the internal membrane of the urethra.

The cure, in the present day, is simple; for the venereal clap, like the venereal pox, appears to have lost much of that virulence and severity of character, by passing from one constitution to another, which it evinced on its first detection. Rest, diluent drinks, and an antiphlogistic regimen will often effect a cure alone. But it may be expedited by cooling laxatives, and topical applications.

Curative process simple in the present day, and why.

The remedies employed are of two kinds, and of very opposite characters; stimulant and sedative. Both, also, are used generally and locally; with a view of taking off the irritation indirectly by exciting a new action; or directly, by rendering the parts affected torpid to the existing action, and thus allowing it to die away of its own accord. Many of these medicines, indeed, as well the local as the general, were, at one time, supposed to be natural antidotes, and to cure by a specific power: an idea, however, which has been long banished from the minds of most practitioners.

Two classes of remedies:

stimulant and sedative:

both used generally and locally.

Mode of action of both.

The general sedatives that have hitherto been principally employed are opium, conium, nitre, oily emulsions, and mucilages. The first has often succeeded, but with considerable and very unnecessary inconvenience to the constitution: the others are not much to be depended upon. They may have co-operated with a rigidly reducent diet, but have seldom answered alone.

General sedatives.

GEN. III. SPEC. II. Blenorrhœa luodes. Clap.

Employed locally, some of them, and particularly opium, have proved far more beneficial. The best form of this last is that of an injection rendered somewhat viscid by oil or mucilage, both which have a greater chance of acting as demulcents, and sheathing, or inviscating the acrimonious corpuscles in this case, than on the irritable surface of the lungs in catarrhs, and asthma, when given by the mouth.

Action when employed locally.

Stimulant process.

The stimulant process has, however, been found to answer so much more rapidly and more effectually, that it has almost superseded the use of sedatives in modern practice.

Stimulants employed generally, how supposed to operate.

Formerly this process, also, was employed generally, and it was supposed, and in many cases sufficiently ascertained, that by strongly irritating some other part the morbid excitement of the urethra would subside, and the organ have time to recover its natural action. And hence the intestines were daily stimulated by cathartics, as neutral salts, mercury, and colocynth, which last was at one time regarded as a specific; or terebinthinates, as camphor, balsam of copaiba, and turpentine itself. And sometimes the bladder was treated in the same manner, with diuretics of all kinds, and especially with cantharides.

Still continued in the East.

This plan is still continued in many parts of the East, and particularly in Bengal and Java; where, as we are informed by Mr. Crawfurd, the common remedy, and one to which the disease, in those hot regions, yields very easily,

Cubebs.

is that of cubebs, the piper *Cubeba* of Linnéus. This pepper, well pounded, is exhibited in a little water, five or six times a day, in the quantity of a dessert-spoonful, or about three drachms, as well in the ensuing as in the present species, during which time all heating aliments are to be carefully abstained from. The cure, we are told, is entirely completed in two or three days, the ardor urinæ first ceasing, and the discharge again becoming viscid. A slight diarrhœa is sometimes produced, with a flushing in the face, and a sense of heat in the palms of the hands, and the soles of the feet. In a few instances, Mr. Crawfurd tells us, inflamed testicles have supervened, an affection

which yields easily to the common treatment *. This plan has of late been extensively made use of at home. Mr. Broughton has given us a result of fifty trials under his own eye: and of these he tells us that he cured forty-one in less than a month; that five were relieved; one was cured, but relapsed; and three failed. He affirms that it does not disagree with the stomach, is more easily admissible than balsam of copaiba and is not attended with the evils of injections. He employed the medicine two or three times a day; giving, of the powder, from two drachms to half an ounce, and of the wine or tincture from a drachm to half an ounce for the dose †.

GEN. III. SPEC. II. Blenorrhœa luodes. Clap.

Successful practice of Broughton.

There is no necessity, however, for subjecting the constitution to so severe a discipline: for the stimulant process, and particularly that of astringent stimulants, when employed locally, succeeds ordinarily in a few days without any trouble. These consist chiefly of metallic salts in solution, as the muriate, and sub-muriate of mercury, the former in the proportion of three or four grains to eight ounces of water:—sulphate of zinc, sulphate of copper, ammoniacal copper, and the acetated solution of lead. The astringent property of most of these, under due management, instead of being found mischievous, gives a check to the morbid secretion, at the same time that it acts as a direct tonic and rapidly restores the irritated mouths of the exhalants to their healthy and proper action; and this, too, without the inconvenience of a secondary inflammation. A slight solution of alum alone, indeed, in the proportion of one or two grains to an ounce of water, has, for this purpose, been often employed with sufficient efficacy; though the present author has reason to prefer the sulphate of zinc, which he has usually combined with bole armenic in the proportion of one scruple of the former and two of the latter to half a pint of water. And he can venture to say that, through a pretty extensive course of practice for upwards of thirty years, he has never known this composi-

Stimulants employed locally.

Metallic salts.

Solution of alum.

Sulphate of zinc with bole armenic.

* Account of the Piper Cubeba. &c. Edinb. Med. and Journ. No. LIII. p. 82.

† Trans. of the Medico-Chir. Soc. Vol. XII. Part I. 1822.

GEN. III. SPEC. II. Blenorrhœa luodes. Clap.

tion to fail; and has never perceived it produce any of the inconveniences of stricture or swelled testicle which were so much but so groundlessly apprehended when the stimulating and astringent practice was first introduced.

The addition of the bole may to some practitioners appear trifling, but it adds to the power of the zinc, probably by giving an increased body to the solution without dimishing its stimulant effect, which would certainly follow by using oil or mucilage in its stead. The sulphate of copper is more irritating than that of zinc, and, in a strong solution, is more likely to produce inflammation; and it is on this account chiefly that the author has confined himself to the latter. It is in effect, by an analogous practice, that several modifications of purulent ophthalmy, and particularly that of infancy, is most successfully subdued, as we observed when treating of this disease.

Sulphate of copper.

Cleanliness.

It is almost unnecessary to add that the utmost cleanliness by frequent washing should be maintained from the first appearance of the disease.

Where the complaint, however, is improperly treated with stimulants, and particularly astringent stimulants, or where it has continued too long before application for medical assistance, the whole range of the urethra, or some particular parts of it, are apt to become so irritable as to excite spasmodic contractions, which commonly pass under the name of strictures, without being so in reality; and, as we have already observed, this irritation in some cases, extends to the interior surface of the bladder, and even thickens it. We have often had occasion to remark that in fibrous structures and canals the most sensible parts are their extremities; and this remark is particularly applicable to blenorrhœa, for the portions of the urethra which suffer most from irritation are the interior membrane of the glans and the prostate, particularly the latter, in consequence of its direct connexion with the bladder as well as the urethral canal.

Spasmodic constrictions, distinct from, though vulgarly called strictures.

Their origin accounted for, and remote action.

On this account, when a patient once labours under spasmodic constrictions from the disease before us, whatever other parts these may exist in, the introduction of a

bougie will be almost sure to prove that there is also a constriction in the prostate. Generally speaking it will be found to originate here, and to occur in other parts of the canal from sympathy. But the case will often be reversed, and while the irritation originates in some other part, or in the bladder, it is by sympathy with these that the prostate itself is affected. Mr. Abernethy has pointed out this double source of spasmodic constriction in the prostate, in the clearest manner possible*; and the remarks he has offered upon the propriety of employing or withholding the bougie as an instrument of cure cannot be too deeply imprinted on every student's mind: the general principle of which is to persevere in its use wherever it appears to blunt the sensibility; and to pass it as high up the urethra as can be accomplished with this effect, if possible indeed through the prostate into the bladder; but in every instance to desist where a second or third trial of the instrument gives more pain than the first, or to content ourselves with passing it as high as can be done without any such symptoms of increased irritation, and there stopping short: and only making an occasional trial when we have reason to hope that the morbid sensibility has still further subsided. M. Ducamp seems to think that little benefit is, in any case, to be derived from the use of bougies on wounds; and that suffering them to remain in the urethra is sure to increase the irritation†. But his attention has been chiefly directed to callosities in the canal; and will be better entitled to notice when we come to treat of constrictions of this kind as a cause of strangury.‡

GEN. III. SPEC. II. Blenorrhœa luodes. Clap.

Commence in the prostate, and extend to other parts.

This rule occasionally reversed.

Bougie how far available, and when to be used.

Discountenanced by Ducamp.

* Surgical Observations on Diseases of the Urethra, p. 194, 8vo. 1810.

† Traité des Retentions d'Urine par le Rétrécissement de l'Urethre, &c. Paris, 8vo. 1822.

‡ Vol. v. Cl. VI. Ord. II. Gen. III. Spec. III.

SPECIES III.

BLENORRHŒA CHRONICA.

Gleet.

SLIMY DISCHARGE FROM THE MUCOUS GLANDS OF THE URETHRA, WITHOUT SPECIFIC VENOM OR INFECTION: SLIGHTLY IRRITATING: CHRONIC.

GEN. III. SPEC. III.

THIS species is a frequent sequel upon a clap that has been ill-managed, or has lasted long, and produced an obstinate local debility. But it exists also independently of clap, and is occasioned by strains, excess of venery, and other causes of weakness. The discharge is, for the most part, a bland and slimy mucus not accompanied with inflammation, apparently proceeding from a morbid relaxation of the mucous glands of the urethra, and at times, like other discharges from debilitated organs, accompanied with and kept up by irritation, and especially irritation produced by a stricture in the urethra properly so called, or a diseased state of the prostate gland.

May be a sequel of the preceding or a primary disease.

Nature of the discharge.

In common cases, the disease yields to the local tonics and astringents recommended under the preceding species, but it is sometimes peculiarly irritable, and bids defiance to all the ingenuity of the medical art. A. Castro gives an instance of its having continued for eighteen years*.

Generally yields to local means with ease: but sometimes peculiarly intractable.

The stimulants ordinarily employed have consisted of copaiba or some terebinthinate or resinous balsam in the form of injection; tincture of ipecacuanha, as recommended by Schwediaur; infusion of cantharides, a favourite remedy with Bartholin; or a blister applied to the urethra, as advised by Mr. John Hunter and several other writers.

Ordinary stimulants.

* De Morb. Mul. p. 68.

Gen. III. Spec. III. Blenorrhœa chronica. Gleet.

The bougie may here be used, for the most part more fearlessly than in the preceding species. Its own simple stimulus, if employed regularly once or twice a-day, has often proved sufficient: and where this fails it may be rendered more active by being smeared with turpentine, mercurial ointment, or camphorated liniment; or armed with nitrate of silver, where there are strictures that require it. Even in this species, however, it is a valuable remark of Mr. John Hunter, that, before we have recourse to any powerful acuants, we should well weigh the degree of irritability of the patient's constitution; for we may otherwise run a risk of exciting a violent local inflammation, or of extending the irritation to the testes or the bladder. Should such an issue unfortunately occur, one of the most salutary injections we can employ is a solution of the extract of hyoscyamus in water. Even in chordees, which resisted the influence of opium, Mr. Bell asserts that he has found this medicine advantageous in the quantity of from one to three grains at a time, and repeated three times a-day or oftener. Or we may have recourse to a warm hemlock poultice, applied every night, and made sufficiently large to cover the whole of the perinæum, testes, and penis. I have known this succeed in taking off an habitual irritation, and with it effectually suppressing the discharge, on the third application, in two instances of more than a twelvemonth's standing; and this after stimulants of all kinds, and narcotics of many kinds, and particularly opium, had been tried in succession. The leaves were here employed in a fresh state. Nisbet gives an instance of cure, produced by a fresh infection: but this is not a remedy to be recommended either medically or morally.

Bougies of advantage.

Sometimes armed with irritants; but this demands caution.

If great irritation succeed how to be treated.

In women this disease is often mistaken for leucorrhœa; we have pointed out the distinctive character under the last species. Yet the mistake is not of essential consequence, as the same treatment will often effect a cure in both. As the vagina, however, is less irritable than the urethra, gleet in females is a less frequent and a less troublesome complaint than in males.

In women gleet sometimes mistaken for leucorrhœa.

GENUS IV.

SPERMORRHŒA.

Seminal Flux.

INVOLUNTARY EMISSION OF SEMINAL FLUID WITHOUT COPULATION.

GEN. IV. Origin of the generic name.

THE generic name is derived from *σπείρω*, "sero", "semino"; whence aspermus, "void of seed", gymnospermus, "having the seed naked",—a term well known in botany; and hence also numerous other derivatives of the same kind. Gonorrhœa, which is a direct synonym, would have been retained as the name for this genus, as it is retained by Linnéus, Sagar, and Frank, but from the confused signification in which it has been employed by Sauvages and Cullen; and from its being usually, though most improperly, applied in the present day to blenorrhœa *luodes*.

Why employed instead of gonorrhœa.

The genus offers two varieties as follow:

1. SPERMORRHŒA ENTONICA. ENTONIC SEMINAL FLUX.
2. ——————— ATONICA. ATONIC SEMINAL FLUX.

SPECIES I.

SPERMORRHŒA ENTONICA.

Entonic Seminal Flux.

INVOLUNTARY EMISSION OF PROPER SEMEN WITH ERECTION; MOSTLY FROM AN INDULGENCE OF LIBIDINOUS IDEAS.

GEN. IV. SPEC. I.

Necessity of an habitual subjugation of the passions.

THE usual cause is assigned in the definition, and it very strikingly points out the influence which the mind bears upon the body, and the necessity of subjecting the passions to the discipline of a chaste and virtuous deportment; since, as there is no passion more debasing than that of gross lust, there is none more mischievous to the general health of the body. It leads the besotted slave straight forward to every other sensuality, and, by becoming at length an established and chronic disease, stupefies the mind, debilitates the body, and is apt to terminate in hectic fever and tabes.

Effects of libidinous indulgence.

Sometimes originates from a corporeal cause.

This affection sometimes originates in the body itself: in a local and urgent erethism, produced, as Forestus conjectures*, by a superabundant secretion of seminal fluid in a constitution of entonic health and vigour. And, as in the former case, the body is to be chastised through the mind, in the present the mind is to be chastised through the body: particularly by purgatives and venesection, a low diet and severe exercise. If, however, the patient be single, as is commonly the case, the pleasantest as well as the most effectual remedy is to be sought for in marriage.

In such case how to be treated.

* Lib. XXVI. Obs. II.

SPECIES II.

SPERMORRHŒA ATONICA.

Atonic Seminal Flux.

INVOLUNTARY EMISSION OF A DILUTE AND NEARLY PELLUCID SEMINAL FLUID; WITH LIBIDINOUS PROPENSITY BUT WITHOUT ERECTION.

GEN. IV. SPEC. II.

Singular examples from Sauvages.

OF this species Sauvages gives us two curious examples: one from Deidier, in which the patient was an exemplary monk, who shrunk with horror at the idea of this involuntary self-pollution, as he regarded it: the other a case in his own practice, in which the patient, a most religious young female, was, as he affirms, driven almost to madness under the same erroneous contemplation of the disease. From his having included a female under this genus, it should seem that Sauvages inclined to the theory of epigenesis, or that which supposes the male and female to contribute equally a seminal fluid in the act of procreation. It is probable that some local irritation is the usual cause. Professor Deidier himself suspected this in the first of the above cases; and referred it rather to a calculus in the bladder, sympathetically affecting the prostate gland, than to any idiopathic disease of the vesiculæ seminales, or the testes. The pious monk found himself most relieved by scourging his legs. a blister applied to the perinæum would probably have relieved him still more effectually. The fluid is a thin degenerate secretion, apparently from the vesiculæ seminales, rather than semen itself. It is sometimes found intermixed with blood; and in this case we have the further irritation of a wound or ruptured vessel. The most common cause of this miserable disorder is a previous life of unrestrained concupiscence: and under this

Nature of the fluid discharged.

Ordinary cause.

debility, hereby produced, the morbid discharge is peculiarly apt to flow upon the mere muscular excitement that takes place on evacuating the rectum; and hence follows hard upon a stool*.

GEN. IV. SPEC. II. Spermorrhœa atonica. Atonic seminal flux.

A cure should be attempted by the daily use of a bidet of cold sea-water, or of early bathing in the sea, and the internal use of metallic tonics. The bowels should be kept lax but the warm and irritating purgatives should be carefully abstained from. Blistering the perinæum, or making a seton in it has occasionally been found serviceable: as has also a local use of electricity.

Medical treatment.

* Art. Med. Berol. Dec. I. Vol. IV. p. 70.—Weichmann De Pollutione, &c. Goett. 1712.

GENUS V.

GALACTIA.

Mislactation.

MORBID FLOW OR DEFICIENCY OF MILK.

Gen. V. Synonyms.

THIS includes the greater part of those affections, treated of by Dioscorides, under the name of sparganosis, which, however, in his arrangement embraced, as we observed under PHLEGMONE MAMMÆ*, many complaints that have little or no connexion with each other, and particularly one of the species of BUCNEMIA, or TUMID-LEG: so that it has been necessary to break up the division and allot to its different members their proper positions.

Origin of the generic name.

GALACTIA is a Greek term, from γάλα, "lac", whence γαλάκτικος, "lacteus." It occurs in Linnéus and Vogel for the genus now before us, which by Sauvages and Sagar is written galactirrhœa, literally "milk-flux", in a morbid sense of the term. The author has preferred GALACTIA as more comprehensive than galactirrhœa, so as to allow the idea of a depraved or defective, as well as of a superabundant secretion of milk: all which are equally entitled to be comprised under one common head, as excess, deficiency, or other irregularity of arterial action in fever. Hitherto, however, from an opposite fault to that of Dioscorides, these affections have been separated from each other by many nosologists, and carried to different heads, sometimes to different orders, and occasionally to different classes; whence the student has had to hunt for them through every section of the nosological arrange-

Galactirrhœa of authors what:

how far differs from galactia.

* Vol. II. Cl. III. Ord. II. Gen. II. Spec. V.

ment. It has already been necessary to make the same remark respecting many of the species of PARAMENIA; and various other instances will occur to us in the ensuing orders of the class we are now explaining. GEN. V. Galactia. Mislactation.

The flow of milk may become a source of disease as being out of season, defective in quantity, vitiated in quality, transferred to an improper organ, and as discharged from the proper organ but in the male sex. These differences will furnish the present genus with five distinct species as follow:

1.	GALACTIA PRÆMATURA.	PREMATURE MILK-FLOW.
2.	——— DEFECTIVA.	DEFICIENT MILK-FLOW.
3.	——— DEPRAVATA.	DEPRAVED MILK-FLOW.
4.	——— ERRATICA.	ERRATIC MILK-FLOW.
5.	——— VIRORUM.	MILK-FLOW IN MALES.

SPECIES I.

GALACTIA PRÆMATURA.

Premature Milk-flow.

EFFLUX OF MILK DURING PREGNANCY.

GEN. V. SPEC. I. Physiological remarks.

THE mammæ which maintain the closest sympathy with the ovaria, and uterus, and in most animals possessing them, are placed in their direct vicinity, and which in truth are as much entitled to the character of a sexual organ as any organ of the entire frame, participate in the developement of the generative function from the first stimulus of puberty. It is then that the breasts assume a globose plumpness, and the catamenial flux commences: when pregnancy takes place, and the uterus enlarges, the breasts exhibit a correspondent increase of swell; and when, shortly after

GEN. V. SPEC. I. Galactia præmatura. Premature milk-flow.

child-birth, the lochial discharge ceases, and the uterus takes rest, the lacteal discharge is secreted and poured forth in immediate succession. The sympathy continues, however, even after this rest has commenced, for one of the most effectual means of increasing the flow of milk from the breasts is a slight excitement of the uterus as soon as it has recovered its tone: and hence the mother of an infant living with her husband, and herself in good health, makes a far better nurse and even requires a less stimulant regimen than a stranger brought from her own family and secluded from her husband's visits. Of this, indeed, many of the rudest and most barbarous nations, but who are not always inattentive to the voice of nature, have the fullest conviction: insomuch that the Scythians, according to Herodotus, and the Hottentots in our own day, irritate the vagina to increase the flow of milk in their cows and mares.

Sympathy with the womb continues after child-birth.

Advantage of a wet-nurse living with her husband.

Illustrated.

How produced prematurely.

It sometimes happens, however, that this stimulus of sympathy is carried to excess even during pregnancy, and that the lactiferous ducts of the mammæ secrete milk from the ultimate branches of the arteries sooner than it is wanted. If the quantity thus separated be small it is of no moment; but if it be considerable some degree of debility is usually produced with restlessness and pyrexy. And hence Galen observes, that a premature flow of milk indicates a weakly child*; and the collections of medical curiosities contain various cases, in which it has appeared to be injurious†. Sauvages gives an instance in which a pint and a half was poured forth daily, as early as the fifth month. Where the constitution is peculiarly robust, even this may for some time be borne with as little mischief as menstruation during pregnancy: but in ordinary cases the system must be weakened by so excessive and unprofitable a discharge. There is another instance noticed in the volume of Nosology in which a pint and a half was poured forth daily at the fifth month.

Why premature milk an indication of a weakly child.

The morbid irritation, however, may generally be taken

* Fragm. ex Aphor. Rab. Mois. p. 34.

† Act. Nat. Cur. Vol. IV. Obs. 66.

off by venesection, and, if this should not succeed, by a few doses of aperient medicines, which have the double advantage of lowering the action in the affected organ, and exciting a new and revulsive action in an organ that is usually more manageable.

Galactia præmatura. Premature milk-flow.

Medical treatment.

It has sometimes happened that a like precocity has occurred in young virgins, and that these also have secreted and discharged milk from the proper organ. In many cases this has occurred as a substitute for the catamenial flux which has been retained or suppressed at the time*; but more generally it has proceeded from entonic plethora, or a morbid erethism of the sexual organs at the period of puberty†; and is to be removed by a reducent regimen, bleeding, and purgatives, as just pointed out.

This prematurity sometimes in young virgins.

Cause, and means of removal.

On the other hand we have occasional instances of a supply of milk, in women considerably advanced in life, and who have long ceased to bear children, and even to menstruate. Thus a woman of sixty-eight, is stated by Dr. Stack, in the Philosophical Transactions, to have given suck to two of her grand-children‡; and another of eighty, in a Swedish Journal, is said to have performed the same office §. In most of these cases the antiquated nurses have consisted of married women, who had many years before reared families of their own, and whose lactiferous organs were therefore more easily re-excited to the renewed action, than if they had never suckled. The cause has been some peculiar irritation originating in the radicles of the lactiferous ducts, or excited by a transfer of action from the uterus or ovaria in consequence of a cessation of the menses.

Milk-flow in aged women who have ceased to bear children or menstruate.

Illustrated.

Action accounted for.

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* De la Corde, Ergo virgo, menstruis deficientibus, lac in mammis habere potest? Paris, 1580.

† Hippocr. Aph. Sect. v. § 39.—Vega, Comment. in Hippocr. Aph. v. § 39.

‡ Vol. XXI. Year 1739. 141.

§ See also Phil. Trans. Vol. IX. year 1674.

SPECIES II.

GALACTIA DEFECTIVA.

Deficient Milk-flow.

INABILITY TO SUCKLE UPON CHILD-BIRTH.

Gen. V. Spec. II. The agalaxis or agalactatio of many writers.

This is the agalaxia or agalactatio of preceding nosologists; and may proceed from two causes, accompanied with symptoms producing the two following varieties:

α Atonica. From want of secretion.
Atonic inability to suckle.

β Organica. From imperfect nipple or other organic defect.
Organic inability to suckle.

Inability to suckle often as serious an evil to the mother as to the child: explained: affords health to the body and gratification to the mind,

To every feeling and considerate mother, inability to suckle is a serious evil: and, generally speaking, it is an evil of as great a magnitude to the mother herself as to the child; for a free secretion of milk prevents many present and not a few eventual mischiefs. The health of women during suckling is, in most instances, better than at any period of their lives. Their appetite is excellent, their sleep sound and refreshing, their spirits free, their temper cheerful. But to every conscientious mother there is, superadded to all this, a pleasurable feeling of a still higher and nobler kind; it is a sense of conscientiously discharging the maternal duty: it is the gratification of beholding the lovely babe to whom she has given birth saved from the cold caresses of a hireling to lie in the warm embraces of her own bosom: to grow from the sweet fountain which she furnishes from her own veins, rich, ample, and untainted: to swell with the tender thrill that shoots through the heart at every little draught which is drawn away from her; to see the cheeks dimple and the

eyes brighten, and the limbs play, and the features open; and to trace, in every fresh lineament, a softened image of herself or one dearer to her than herself. This is the luxury that awaits the mother, whose unseduced ear still listens to the voice of Nature, and estimates the endearments of domestic life at a higher value than the intoxicating charm of fashionable amusements and midnight revels. Though transported with the present, her comforts do not end with the present: for she has yet to look forward to a term of life in which, when those who have made a sacrifice of maternal duty at the altar of pleasure, are wasting with decline, trembling with palsy, or tormented with the dread of cancer, she will still enjoy the blessing of unbroken health, and sink as on a downy pillow into a tranquil old age.

GEN. V. SPEC. II. Galactia defectiva. Deficient milk-flow.

and prepares for health in advanced life.

But though these remarks apply to the greater number of those who, in the career of fashion, abstain from the duty of a mother, it by no means applies to all. There are many excellent mothers who would undergo the severest discipline of pain to accomplish this object, but after all are not able. There are some who from the want of a proper nipple, or perhaps the want or undevelopement of lactiferous ducts are naturally disqualified for the office: as there are others whose constitutional debility renders them incapable of secreting their milk in sufficient abundance, or with a sufficient elaboration for healthy food. And in all such cases it is expedient, wherever the means will allow, to seek carefully for the substitute of a foster-mother.

Yet many cannot suckle, however desirous.

Sources of disqualification.

But let not the natural office be abandoned too soon, and particularly where the child is strong and hearty. If the nipple be at fault much may be done to remedy it. If it be buried in the breast it may often be drawn out by exciting a vacuum with the ordinary glass-tube invented for the purpose, if dexterously applied; or, which will often succeed better, by the suction of a woman who is well skilled in the art: or an artificial nipple may be employed if these do not succeed.

Some of these capable of being remedied.

And if the breasts be hard and lumpy, and a consider-

Gen. V. Spec. II. Galactia defectiva. Deficient milk-flow.

able degree of symptomatic fever supervene, the same kind of suction must be had recourse to twice a-day, while the breasts are kept in a constant state of relaxation by gentle friction with warm-oil, large cataplasms of bread and water, and a suspensory bandage of flannel passed under the arms and drawn as tight as may be borne without inconvenience.

Milk sometimes flows after being despaired of, as the mother's strength returns.

Even where the milk is not very promising, either in respect to quantity or quality, let not the unhappy mother despair for the first week or two. As her own strength increases, the strength of the milk will often be found to increase also: the milk-vessels will yield with more facility, and the symptomatic pain in the back will subside. Added to which the matrimonial excitement to which I have alluded in the preceding species, will in due time, be called in to bear its beneficial part; and the woman who had a hopeless prospect before her may in due time reap the full harvest of her labours.

SPECIES III.

GALACTIA DEPRAVATA.

Depraved Milk-flow.

EFFLUX OF A DILUTE OR VITIATED MILK.

Gen. V. Spec. III.

HERE also we have two varieties:

α Serosa. Serous Milk-flow.	Weakened by too large a proportion of serum.
β Contaminata. Contaminated Milk-flow.	Deteriorated by intermixture with some foreign material.

α G. depravata serosa. Serous milk-flow.

To the FIRST VARIETY we have alluded under the preceding species: for it sometimes happens that milk, when

deficient in quantity, is also of a more dilute quality than it ought to be. But more frequently, as local irritation is a result or concomitant of debility, there is in weakly habits a very large flow of a thin, slightly blue, and almost pellucid milk, containing little sugar, and still less cream. The properties of a sound woman's milk we have already given under CONSUMPTION, and to save an unnecessary repetition, the reader may turn to the passage, at his leisure, and compare it with the defective character before us *.

GEN. V. SPEC. III. α G. depravata serosa. Serous milk-flow.

Tonics, and a generous diet, afford in this case the best chance of success, and are often employed with full effect.

Under the SECOND VARIETY the assimilation is imperfect, and the milk has the taste or smell of beer, or wine, or some other fluid that has been introduced into the stomach: proving that the digestive power is weak, and requires correction and invigoration. In other cases we have examples of black, green, or yellow milk: probably discoloured by an union with effused blood.

β G. depravata contaminata. Contaminated milk-flow.

All violent exertions, whether of body or mind, and hence violent passions, as rage and terror, have a peculiar influence in changing the natural character of milk; and the depressing passions frequently drive it away entirely †. It is hence, of no small moment that a wet nurse be of an easy and even temper, and not disposed to mental disturbance.

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* Marasmus Phthisis, Vol. III. Cl. III. Ord. IV. Gen. III. Spec. V.

† Starck, Archiv. für Geburtshelfer. B. III. 12. B. II. p. 8.

SPECIES IV.

GALACTIA ERRATICA.

Erratic Milk-flow.

MILK TRANSFERRED TO, AND DISCHARGED OR ACCUMULATED AT SOME REMOTE ORGANS, OFTEN UNDER A DIFFERENT FORM.

Gen. V. Spec. IV. Has been transferred to almost every organ.

Like the menstrual flux, there is scarcely an organ to which the flow of milk has not been transferred under different circumstances, or in different constitutions. And hence the author has adverted in the volume of Nosology to examples of its translation to the fauces, where it has been discharged in the form of a ptyalism: to the general surface of the mammæ, where it has been evacuated in the form of sweat: to the navel, where it has assumed an ichorous appearance: to the kidneys, which have thrown it off in an increased flow of urine: to the eyes, whence it has been discharged as a milky epiphora; to the veins, which it has overloaded, so as to demand the use of the lancet: and to the vagina, where it has excited a copious leucorrhœa. It is also said to be frequently translated to the thighs, so as to produce the disease we have already described under the name of BUCNEMIA SPARGANOSIS, but which is clearly unconnected with the state of the milk or of the breasts.

Fauces:

surface of the breasts:

navel:

kidneys:

eyes:

vagina:

Causes.

The causes are chiefly a sudden exposure of the breasts to cold; cold-water drunk improvidently when in a state of perspiration, spirituous potation, and sudden emotion of mind.

Mode of treatment.

The irregular action is best subdued by gentle laxatives, diaphoretics, and perfect quiet in a warm bed. Where ardent spirits have been the cause, the aperients

should be more stimulant, and bleeding will often be necessary.

GEN. V. SPEC. IV. Galactia erratica. Erratic milk-flow. Treatment.

The blood itself, however, during the time of suckling is often loaded with milk from resorption, and evinces a milky appearance, as are likewise several of the fluids secreted from the blood: and hence, also one cause of many of the above peculiarities.

Blood sometimes loaded with a milky appearance.

SPECIES V.

GALACTIA VIRORUM.

Milk-flow in Males.

MILK SECRETED IN MALES AND DISCHARGED FROM THE PROPER EMUNCTORY.

GEN. V. SPEC. V. Has frequently occurred in different periods of life.

A MILKY serum, and sometimes genuine milk has been found to distil from the nipples of new-born infants, of both sexes, and sometimes from boys of a later age. But various authors, as Schöltz, P. Borelli, and Lauremberg have given cases of genuine milk discharged in like manner by adult males; occasionally continuing for a long time; and, in some instances, enabling them to perform the office of nurses. In the Commentaries of the St. Petersburgh Academy*, a flow of milk from the breasts of males, is said to be very common in Russia: and Blumenbach has noticed the same peculiarity in the males of various other mammals†. Among men, indeed, the discharge appears occasionally to have occurred even in advanced life; for Paullini gives the case of a man, who was able to suckle at the age of sixty‡.

* Tom. III. p. 278. † Hanoverisch Magazin, 1787.
‡ Cent. II. Obs. 98.—Stadler, Diss. de Lacte Virorum et Virginum.

GEN. V. SPEC. V. Galactia Virorum. Milk-flow in males.

Why it does not occur generally; and accounted for where it does occur.

Why man should, in every instance, possess the same organization as women for secreting and conveying milk, is among the many mysteries of physiology that yet remain to be solved. But as there is little or no sympathy between the mammæ in man and any of the proper organs of generation, as in women, we are at no loss to account for their general sterility and want of action. Occasionally, however, the lacteal glands in man, or the minute tubes which emerge from them are more than ordinarily irritable, and throw forth some portion of their proper fluid. And if this irritation be encouraged and supported there is no reason why such persons may not become wet-nurses as well as females. And hence, Dr. Parr inquires, with some degree of quaintness, whether this organization is allotted to both sexes, in order that "in cases of necessity men should be able to supply the office of the woman?" Under these circumstances, the discharge, though unquestionably a deviation from the ordinary law of nature, can scarcely be regarded as a disease.

Interesting illustration from Franklin.

The following, from Captain Franklin's Narrative of his Journey to the shores of the Polar Sea, is a beautiful exemplification of what Dr. Parr refers to; and I cannot consent to alter the forcible and seaman-like simplicity of the style in which the story is told. "A young Chipewyan had separated from the rest of his band for the purpose of trenching beaver, when his wife, who was his sole companion, and in her first pregnancy, was seized with the pains of labour. She died on the third day after she had given birth to a boy. The husband was inconsolable, and vowed, in his anguish, never to take another woman to wife; but his grief was soon in some degree absorbed in anxiety for the fate of his infant son. To preserve its life he descended to the office of a nurse, so degrading in the eyes of a Chipewyan, as partaking of the duties of a woman. He swaddled it in soft moss, fed it with broth made from the flesh of the deer; and, to still its cries, applied it to his breast, praying earnestly to the Great Master of Life to assist his endeavours. The force of the powerful passion by which he was actuated produced the same effect in his

case as it has done in some others which are recorded: a flow of milk actually took place from his breast. He succeeded in rearing his child, taught him to be a hunter, and, when he attained the age of manhood, chose him a wife from the tribe. The old man kept his vow in never taking a wife for himself, but he delighted in tending his son's children; and when his daughter-in-law used to interfere, saying, that it was not the occupation of a man, he was wont to reply, that he had promised to the Great Master of Life, if his child was spared, never to be proud like the other Indians.—Our informant (Mr. Wenkel, one of the association) added, that he had often seen this Indian in his old age, and that his left breast, even then, retained the unusual size it had acquired in his occupation of nurse." *

GEN. V. SPEC. V. Galactia Virorum. Milk-flow in males.

* P. 157. 4to. Lond. 1823.

CLASS V.

GENETICA.

ORDER II.

ORGASTICA.

Diseases affecting the Orgasm.

ORGANIC OR CONSTITUTIONAL INFIRMITY, DISORDERING THE POWER, OR THE DESIRE OF PROCREATING.

CLASS V. ORDER II. Origin of ordinal term.

THE ordinal term ORGASTICA, is derived from ὀργάω "appeto impatienter; propriè de animantibus dicitur, quæ turgent libidine". *Scapul.* Orgasmus is, hence, used by most writers for salacity in general; though by Linnæus it is employed in a very different sense, being restrained to *subsultus arteriarum.*

The following are the genera which appertain to this order:

I.	CHLOROSIS.	GREEN-SICKNESS.
II.	PRŒOTIA.	GENITAL PRECOCITY.
III.	LAGNESIS.	LUST.
IV.	AGENESIA.	MALE STERILITY.
V.	APHORIA.	FEMALE STERILITY. BARRENNESS.
VI.	ÆDOPTOSIS.	GENITAL PROLAPSE.

GENUS I.

CHLOROSIS.

Green-Sickness.

PALE, CHLORID COMPLEXION; LANGUOR; LISTLESSNESS; DEPRAVED APPETITE AND DIGESTION: THE SEXUAL SECRETIONS DEPRAVED OR INERT, ESPECIALLY AT THEIR COMMENCEMENT.

Gen. I. Origin of generic term.

Chlorosis is a derivative from χλόα or χλόη "herba virens"; whence, among the Greeks, χλώρασμα and χλωρίασις "viror", "pallor"; evidently applied to the disease, like our own term green-sickness, from the pale, lurid, and greenish cast of the skin.

General causes.

The causes of this disorder are numerous; one of the most frequent is menostation, retained or suppressed catamenia; another is excessive menstruation; a third, inability of obtaining the object of desire, in popular terms love-sickness; a fourth is dyspepsy, or any other source of general debility about the age of puberty, by which the natural developement of the sexual system and the energy of its secretions is at this time interfered with. Dr. Parr makes it a question whether love-sickness or an ungratified longing for an object of desire is ever a cause; but the examples are too numerous to give countenance to any doubts upon the subject*; and pining, eager, ungratified desire for any object whatever, in a particular state of constitution, whether for an individual or for a particular circle of society, for home or for country, is well known in

Whether love-sickness ever a cause:

* Panarol. Jatrolog. Pentech. III. Obs. 14.—Ephem. Nat. Cur. Dec. II. Ann. II. Obs. 114.

Gen. I. Chlorosis. Green-sickness.

many cases to break down the general health, and to lay a foundation for chlorosis, as well as many other complaints even of a severer kind. We have already noticed it as producing suppressed menstruation; as we have also the opposite state of disappointment overcome, renewed hope, and a prospect of connubial happiness, as one of the best and speediest means of cure.

Retained menses and dyspepsy during puberty the most common causes:

Perhaps retained menses, and dyspepsy at the period of puberty, are the most common causes; and hence chlorosis makes so near an approach to both these complaints that some nosologists have merged it altogether in the first, and others in the second. Dr. Cullen, so far as relates to his *opinion*, is an example of the former. Dr. Young, so far as it relates to his *arrangement*, of the latter. It is necessary to attend to this limitation: for while Dr. Cullen, in the latter editions of his Synopsis, asserts "nullam chlorosis speciem veram, præter illam quæ retentionem menstruorum comitatur, agnoscere vellem"—he still continues chlorosis in all the editions of this work as a distinct genus from amenorrhœa, or PARAMENIA *obstructionis*, of which upon this view of the subject it should be only a species or variety. In the same manner, Dr. Young, while he makes chlorosis a mere species of dyspepsia in his classification, observes, as though dissatisfied with its arrangement, "I have followed a prevalent opinion, but there are various reasons for thinking it is quite as naturally connected with amenorrhœa." Professor Frank has more lately directly arranged it as a subdivision or variety of this last complaint*.

and hence all these affections sometimes blended or confounded by nosologists.

According to Sauvages occurs in infancy.

Chlorosis is often, indeed, not only connected with amenorrhœa, but a consequence of it. Yet few writers have felt themselves able to adopt this view upon the subject, and to believe it in every instance a modification of this disease. Sauvages asserts that there are daily cases of chlorosis occurring among children from their cradles; and he has hence, among his chloroses VERÆ, set down one species under the name of chlorosis *infantum*. This,

but the cases are those of dyspepsy only.

* De Cur. Hom. Morb. Epitom. Tom. VI. Lib. VI. Par. III. 8vo. Viennæ, 1821.

however, is to generalize the term too widely, and to make it include all cases marked by indigestion, and a chlorid countenance. Yet I cannot but concur with those authors who contend that chlorosis is by no means uncommon among females who have *no interruption* of the menstrual flux; though a derangement of some kind or other in quantity, quality, or constituent principles appears to be always connected with it; and is for the most part the cause or leading symptom. There is even ground for carrying the term, with other authors, still further, and applying it to green-sick boys as well as green-sick girls, for reasons which will be offered in their proper place.

GEN. I. Chlorosis. Green-sickness.

Yet in adult life at times occurs where no interruption of the menstrual flux, though generally some derangement in its quantity or quality.

For the present, it is sufficient to characterize chlorosis as a dysthesis or cachexy, produced by a diseased condition of the sexual functions operating upon the system at large, and hence most common to the age of puberty, in which this function is first called forth by the complete elaboration of organs that have hitherto been inert and undeveloped. "A certain state of the genitals", says Dr. Cullen, and the remark will apply to both sexes equally, is "necessary to give tone and tension to the whole system; and, therefore, if the stimulus arising from the genitals be wanting, the whole system may fall into a torpid and flaccid state, and from thence chlorosis may arise."

Chlorotic boys.

General character.

The genus CHLOROSIS offers the two following species:

1. CHLOROSIS ENTONICA. ENTONIC GREEN-SICKNESS.
2. ——— ATONICA. ATONIC GREEN-SICKNESS

SPECIES I.

CHLOROSIS ENTONICA.

Entonic Green-sickness.

HABIT PLETHORIC; PAIN IN THE HEAD, BACK, OR LOINS; FREQUENT PALPITATIONS AT THE HEART; FLUSHES IN THE FACE; PULSE FULL, TENSE, AND FREQUENT.

GEN. I. SPEC. I.

CHLOROSIS has been commonly confined to the second or atonic species. But the symptoms and mode of treatment of the disease, as it appears in a vigorous, florid, and full-bosomed country-girl overflowing with health and hilarity; and in a delicate, pale-faced, emaciated town-girl, debilitated by an indulgence in a course of luxurious indolence from her infancy, seem to justify and even demand a distinction.

Necessary distinction of this species from the ensuing.

In both cases there is want of energy of mind, great irregularity in the mental functions, and often a high degree of irritability in the nervous system, clearly proving a very extensive disturbance of the general balance. But they differ in the symptoms enumerated in the definitions, than which no two sets can well be more at variance. They differ also in the remote and proximate causes, and consequently in the mode of treatment.

Wherein they agree.

Wherein they differ.

In the species before us, characterized by a rich and opilated habit, with a full and tense pulse, and pressive pains in the head or loins, the ordinary causes are catching cold in the feet at the period of the catamenial discharge, by which the constitutional plethora is considerably aggravated, and the plethoric excess itself even where no cold has been received. The pains so common and often so severe in the back and loins, and, from sympathy, not unfrequently in other parts, evince local irritability with entastic spasm

Description.

in the organs which form the seat of the disease. There is here a morbid accumulation of living power; the fabric is satiated or overloaded; and for the very reason that in dyspermia *entonica* or super-erection, as we shall have occasion to observe presently, there is no seminal emission, or as in double-flowering plants there is no efficient developement of the sexual distinctions, in the present case there is no efficient secretion of the genital fluids. And as we have shown in the Physiological Proem to the present order, that the maturity of the system in females as well as in males, depends upon a developement of the sexual organization in all its powers, and a certain degree of resorption of its secreted materials, the general frame, how rich soever and even oppressed with juices of other kinds, must remain incomplete and unripened, and sicken at the time of maturity for want of this appropriate stimulus. And if such an effect may occur where there is no concomitant source of excitement, we can easily conceive how much more readily it may take place upon catching cold in the feet, or on a sudden and violent mental emotion, or any other cause that may accidentally add to the pressive irritation of the organs immediately affected, and increase their tendency to spasmodic action.

Gen. I. Spec. I. Chlorosis entonica. Entonic green-sickness.

Pathology.

Yet there can be no doubt that the species before us, though the offspring of a redundancy of living power, if neglected, or obstinate, and of long continuance, may, and often does, by debilitating the constitution, terminate in the atonic species we shall presently enter upon.

May terminate in the atonic species.

Before such a change, however, takes place, and particularly in the commencement of the disease, we are loudly called upon for general depletion. Copious and not unfrequently repeated venesections will be found necessary: cooling, rather than heating and irritant purgatives should be interposed; and where pain about the lumbar region, or any other local irritation, is very troublesome, the hip-bath, or a general warm-bath should be used steadily. And when, by this plan, the sanguiferous entony is subdued, a plain diet, regular exercise, and sober hours, will easily accomplish the rest.

Medical treatment.

SPECIES II.

CHLOROSIS ATONICA.

Atonic Green-sickness.

HABIT DEBILITATED; GREAT INACTIVITY AND LOVE OF INDULGENCE; DYSPNŒA ON MOVING; LOWER LIMBS COLD AND EDEMATOUS, ESPECIALLY AT NIGHT; PULSE QUICK AND FEEBLE.

GEN. I. SPEC. II. Specific character.

In conjunction with the above specific symptoms, there is, in this division of the disease, the same want of energy of mind, and fickleness of temper, and corporeal irritability which we have already noticed in the preceding, and this too in a much greater degree; abundantly proving a very extensive disturbance of the general balance.

Chiefly found among the indolent and the victims of fashionable life.

For examples of this species we are to look not into the quiet and sober retreats of rural life, marked by simple meals, healthful activity, and early hours; but to the gay and glittering routine of town indulgences, and midnight parties, and hot unventilated atmospheres; the havoc of all which is to be seen in the pale, but bloated countenance, the withering form, emaciated muscles, and departing symmetry of those who are the victims of a life of pleasure; and who, in consequence of their turning night into day, are exhausted, and drowsy, and spiritless, and perhaps confined to their beds all the morning; thus carrying on the inversion of nature, and turning in like manner the day into night.

Under a life of this kind, it is impossible for a growing girl to acquire a healthy maturity: and most happy is it for her that the caprice of fashion, which calls upon her to make this heavy sacrifice of her person for one half the year, drives her, in most cases, into the freshening shades and soberer manners of the country for the other half.

GEN. I. SPEC. II. Chlorosis atonica. Atonic green-sickness.

There are other girls, however, who, without these peculiar sources of exhaustion, have so much constitutional debility and relaxation, as to be incapable of bearing the double load of growth and sexual developement without manifesting a considerable degree of sickliness in all their functions.

Sometimes produced by a natural debility.

In both these cases the disease is probably produced by a chemical imperfection or want of elaboration in the blood itself, so as not to keep pace with the expansion and irritability of the sexual organs; and consequently so as not to afford them a pabulum sufficiently rich and ripe for secretion.

Probably a chemical imperfection in the blood in this species.

Medical treatment.

Here, therefore, bleeding and purgatives would only add to the evil; and it behoves us even from the first to employ a strengthening and tonic plan, and to extend it through all the departments of diet, exercise, and medicine: the whole of which, however, may be collected from what has already been observed on the genus PARAMENIA. It is probable that the internal use of iodine either in the form of pills or tincture, amounting to about half a grain to a dose, might in many cases of this modification of the disease be found a very useful stimulant as well as tonic, and prove even of more general service than in simple emansion of the menses.

How far chlorosis may exist in males.

The same kind of debility which prevents the full developement of the sexual organization and a secretion of the sexual juices in growing girls prevails, not unfrequently, in growing boys; and especially when about the age of puberty the growth is rapid, and outruns the general strength of the system. And it is to this state I alluded when observing, a page or two back, that the term chlorosis has occasionally been applied to males as well as to females at this unsettled period of life. In the volume of Nosology I have remarked that it is frequently so applied in the East, and especially among Persian writers, who accordingly express one subdivision of the disease by the name of bimariy hodek (بيماري كودك) or morbus *puerorum*. Bonet has followed the oriental extension of the term, and has given instances of its occurring not only in pubescent

Generally admitted among Eastern writers:

GEN. I. SPEC. II. Chlorosis atonica. Atonic green-sickness.

and the idea adopted by various European authors.

but even adult males: and, in like manner, Sir Gilbert Blane in his table of diseases under the article chlorosis, observes that one of his patients affected with this complaint "was a male of seventeen, who had all the characters of this malady except that which is peculiar to the female sex. He was treated like the others, and recovered under the use of carbonated iron and aloes."* It is on this account that the definition of chlorosis will be found, in the present work, to vary in some degree from all that have preceded it, so as to render its characters capable of embracing the male as well as the female form of the disease, which unquestionably ought to be included under it: and is to be attacked by the same remedial plan.

* Medico-Chir. Trans. Vol. IV. p. 140.

GENUS II.

PRŒOTIA.

Genital Precocity.

PREMATURE DEVELOPEMENT OF SEXUAL ORGANIZATION OR POWER.

THE generic term PRŒOTIA or PRŒOTES is copied from Theophrastus, and derived from πρωὶ, "præmaturè." It is, however, peculiarly applied to premature semination. GEN. II.

The genus, as embracing both sexes, comprises the two following species:

1. PRŒOTIA MASCULINA. MALE PRECOCITY.
2. ——— FEMININA. FEMALE PRECOCITY.

SPECIES I.

PRŒOTIA MASCULINA.

Male Precocity.

PREMATURE DEVELOPEMENT OR SEXUAL ORGANIZATION IN MALES.

BOTH the mind and body advance in their ordinary career, by slow and almost imperceptible steps to maturity; faculty after faculty, and function after function puts forth, acquires strength, and becomes perfected. But it occasionally happens that this ordinary course is departed from, and that the whole system as well mental as corporeal, or, which is still more frequent, that particular powers or organs, push forward with incredible rapidity. The ad- GEN. II. SPEC. I. General pathology. Precocity of both mental and corporeal powers.

GEN. II. SPEC I. Præcocia masculina. Male precocity.

mirable Crichton, as he is commonly called, and others pre-eminently gifted in the same extensive way, afford instances of the first of these remarks: and those who, in early and even in infant life, have shown a peculiar aptitude for an acquisition of languages, or of music, or numerical arithmetic, give examples of the last kind.

Precocity of sexual organization.

It is not hence much to be wondered at that a like extraordinary precocity should sometimes exhibit itself in the developement of sexual organization and power: and that, from a peculiar degree of local irritation or erethism, the pubes should be found covered with hair, the testes be formed and capable of secreting a seminal fluid, and the penis be susceptible of a concupiscent turgescence and erection.

Exemplification.

It is not necessary to dwell upon instances of exemplification, which may be traced in great numbers in the writings of physiologists who have been curious upon this subject. Those who are desirous of doing so, may turn to the Journal des Sçavans for 1688, and the Philosophical Transactions for 1745. In the former, Boiset gives an instance of this disgusting anticipation in a boy of three years old; in the latter, the subject in the case recorded was two years and eleven months. A similar example at a similar age is well known to have occurred, only a few years since, in a boy who was exhibited by his friends for money to medical practitioners in this metropolis; and may be found, together with various others, minutely described in the first volume of the Medico-Chirurgical Transactions.

Mischief of a public exposure of the person under these circumstances.

With respect to moral, or even medical treatment, nothing can be worse than this very common practice of a public exposure whenever the case occurs among the poor, who are so strongly tempted to make a profit of it. The orgasm is fed by a repetition of examinations, and the polluting tide that exhausts and debases the body, is at length accompanied, even though it should not be so at first, with a polluting pleasure, that in a still greater degree exhausts and debases the mind. An occasional application of leeches to the seat of affection, cooling aperients,

Remedial treatment.

a cool, loose, and unirritating lower dress, with the daily use of a bidet of cold water, or iced water, will form the best plan that can be pursued on such occasions: and, by producing a healthful repression, may enable the unhappy infant to grow up with gradual vigour to the possession of a hearty manhood, instead of sinking, as has been sometimes the case, into a premature and tabid old age at the early period of puberty.

Gen. II. Spec. I. Præcotia masculina. Male precocity.

SPECIES II.

PRÆCOTIA FEMININA.

Female Precocity.

PREMATURE DEVELOPEMENT OF SEXUAL ORGANIZATION IN FEMALES.

Under the species of obstructed menstruation, we have observed that this secretion which commonly affords a proof that the sexual organization is developed, and its function completed, takes place at very different periods of life under different circumstances, chiefly those of climate and peculiarity of constitution: and that though its ordinary epoch is that of thirteen or fourteen, it has sometimes, under the influence of a tropical sun, or a warm and forward temperament, shown itself as early as eight or nine years of age*.

Gen. II. Spec. II. General physiological remarks.

There is hence no difficulty in conceiving that, under the influence of the same kind of local erethism we have noticed in the preceding species, the sexual organization in females may acquire a similar precocity to that in males. And so complete has been the developement occasionally, that we have numerous and well authenticated instances of pregnancy itself occurring at the early age of nine years, on

The present species readily accounted for.

* Walther, Thes. Obs. 40.

GEN. II. SPEC. II. Præotia feminina. Female precocity.

which we shall have to remark more fully in the introductory observations to the third Order of the present Class, when treating of morbid impregnation.

The morbid predisposition to be timely checked:

This foremarch of nature should be timely checked, for it will otherwise assuredly lead to a very great debility of the system in general, and is usually found to stint the stature, and induce a premature old age. And the means of repression may be the same as those already proposed for male precocity.

not always connected with any cupidinous orgasm.

Exemplified.

The premature developement of organization before us does not always seem to be connected with any cupidinous orgasm, or at least it has occurred under circumstances that render it extremely difficult to entertain any such idea. One of the most singular instances of this kind is a case of extra-uterine fetation communicated by Dr. Baillie to the Royal Society, and published in their Transactions for 1789. It consisted of a suetty substance, hair, and the rudiments of four teeth, found in the ovarium of a child of not more than twelve or thirteen years of age, with an infantine uterus, and perfect hymen*.

Example explained.

In this case there can be little doubt that an ovulum by some peculiar irritation had been excited to the rudimental process of an imperfect conception, and that it had, in consequence, been separated from its niche, and a corpus luteum taken its place. In the Physiological Proem to the present Class, we have observed that such changes are occasionally met with in mature virgins whose organs have afforded ample proof of freedom from sexual commerce, the ordinary mode of accounting for which, is by supposing that although they have never cohabited with the male sex, they have at times felt a very high degree of orgasm or inordinate desire, and that such feeling has been a sufficient excitement to produce such an effect. The author has already expressed himself not satisfied with this explanation; and the case before us can hardly be resolved into any such cause.

* Phil. Trans. Vol. LXXIX. p. 71.

GENUS III.

LAGNESIS.

Lust.

INORDINATE DESIRE OF SEXUAL COMMERCE, WITH ORGANIC TURGESCENCE AND ERECTION.

Gen. III. Origin of generic term. Synonyms.

LAGNESIS is a derivative from λάγνης, "libidinosus"; "præceps in venerem"; and, as a genus, is intended to include the SATYRIASIS and NYMPHOMANIA of Sauvages, and later authors; which, chiefly, if not entirely, differ from each other only as appertaining to the male or female sex, and in their symptoms do not, like the preceding genus, offer ground for two distinct species. The proper species belonging to this genus are the following:

1. LAGNESIS SALACITAS. SALACTY.
2. ———— FUROR. LASCIVIOUS MADNESS.

SPECIES I.

LAGNESIS SALACITAS.

Salacity.

THE APPETENCY CAPABLE OF RESTRAINT; THE EXCITEMENT CHIEFLY CONFINED TO THE SEXUAL SYSTEM.

Gen. III. Spec. I. Physiological remarks.

IN a state of health and civilized society there are two reasons why mankind are easily capable of restraining

GEN. III. SPEC. I: Lagnesis Salacitas. Salacity.

within due bounds the animal desire that exists in their frame from the period of puberty till the infirmity of age: the one is of a physical, and the other of a moral kind. The natural orgasm of men differs from that of brutes in being permanent, instead of being periodical or dependent upon the return of particular seasons; and on this very account is less violent, more uniform, and kept with comparative facility within proper limits. This is a cause derived from the physical constitution of man. But the power of habit and the early inculcation of a principle of abstinence and chastity in civilized life, form a moral cause of temperance that operates with a still stronger influence than the preceding, and lays down a barrier, which, though too often stealthily broken into, yet, in the main, makes good its post and serves as a general check upon society.

Ordinary causes of temperance.

Hence less restraint in savage life:

As man rises in education and moral feeling, he proportionally rises in the power of self-restraint; and consequently, as he becomes deprived of this wholesome law of discipline, he sinks into self-indulgence and the brutality of savage life. And were it not that the very permanency of the desire, as we have already observed, torpefies and wears out its goad, the savage, destitute of moral discipline, would be at all times as ferocious in his libidinous career as brutes are in the season of returning heat; when, stung with the periodical ardour, and worked up almost to fury, the whole frame of the animal is actuated with an unbridled force, his motions are quick and rapid, his eyes glisten, and his nerves seem to circulate fire. Food is neglected; fences are broken down; he darts wild through fields and forests, plunges into the deepest rivers, or scales the loftiest rocks and mountains, to meet the object that is ordained by nature to quell the pungent impulse by which he is urged forward*:

and none among the lower classes of animals.

> Nonne vides ut tota tremor pertentet equorum
> Corpora, si tantum notas odor attulit auras?

* See Crichton on Mental Derangement, II. p. 301.

Ac neque eos jam frœna virûm, neque verbera sœva,
Non scopuli, rupesque cavæ, atque objecta retardant
Flumina, correptos undâ torquentia montes*.

Gen. III. Spec. I. Lagnesis Salacitas. Salacity.

The power of restraint, however, does not operate alike on all persons even in the same state of society, and under a common discipline. Period of life, constitution, and habit, produce a considerable difference in this respect, and lay a foundation for the four following varieties of morbid salacity:

Restraint not equally obtained in all persons and at all periods of life.

α Pubertatis.	Salacity of youth.
β Senilis.	——— of age.
γ Entonica.	——— of full habit.
δ Assueta.	——— of a debauched life.

The FIRST VARIETY proceeds not so much from organic turgescence, as from local irritability: for it is chiefly found in relaxed and delicate frames, weakened by overgrowth, or a life of indolence and indulgence. The action is new, and where, from whatever cause, the irritability is more than ordinary, a degree of excitement is produced which shows itself constitutionally or topically. If in the former way, hysteria or chorea, or some other nervous affection, is a very frequent effect: if in the latter, a high-wrought and distressing degree of appetency. It is under this state that females are said to be capable of separating ovula from their ovaries, and of forming corpora lutea without copulative perculsion, in the same manner as the ovaries of quadrupeds that are only capable of breeding in a certain season of the year, exhibit, during their heat, manifest proofs of excitement and especially of florid redness, when examined by dissection. I do not think the assertion concerning women is altogether established: but in the case of young men when entering upon, or emerging from pubescence, and of the relaxed and delicate frame just noticed, nothing is more common than involuntary erection and seminal emission during sleep, often connected with a train of amorous ideas excited by the

α L. Salacitas pubertatis. Salacity of puberty.

Pathology.

Why most frequent in relaxed habits.

* Virg. Georg. Lib. III. 250.

GEN. III. SPEC. I. α L. Salacitas pubertatis. Salacity of puberty.

local stimulus, as we have already observed under PARONIRIA SALAX*.

It is possible that this affection may occasionally be a result of entony or plethoric vigour as well as of atony or delicacy of health: but the last is by far the most common cause.

Sometimes a result of entony.

Remedial treatment.

In the first case we have nothing more to do than to reduce the excess of living power by copious venesections and purgatives, active labour or other exercise, and a low diet. In the second, it will be expedient in a very considerable degree to reverse the plan We may, indeed, palliate the topical irritation by the use of leeches and cooling laxatives; but, in conjunction with these, we should employ the unirritant tonics, as the salts of bismuth, zinc, and silver, or the sedative tonics, as the mineral acids, most of the bitters, and the cold bath. By taking off the debility we take off the irritation, and by taking off the irritation we overpower the disease.

β L. Salacitas senilis. Salacity of age.

The SALACITY OF AGE is a very afflictive malady, and often wears away the hoary form to the last stage of a tabid decline by the frequency of the orgastic paroxysms, and the drain of seminal emissions without enjoyment,

Causes.

It is usually a result of some accidental cause of irritation in the ovaria, the uterus, the testes, or the prostate gland; and has sometimes followed upon a stone in the kidneys or bladder; and is hence best relieved by removing or palliating the local irritation by a warm hipbath, anodyne injections, or cataplasms of hemlock or the other umbellate or lurid plants in common use. Where these do not succeed, our only resource is opium, and the warmer tonics.

Singular exemplification.

In the first volume of the Transactions of the Medical Society of London, Mr. Norris has given a very curious and striking case of this variety, produced by a blow received a few months before near the prostate gland, followed by a small, but nearly indolent tumour on the part affected. The patient was a married man of sixty-seven,

* Vol. IX. p. 179.

and during the violence of the erethism occasioned by this local irritation, which had now continued for two months, was reduced to a state of the most wretched and squalid emaciation. He could not restrain the libidinous propensity, though he confined himself to his wife, with whom he copulated from fifteen to twenty times nightly, receiving, nevertheless, pain rather than pleasure from the indulgence. The wife, a matronly woman of great modesty, was hereby rendered extremely ill from local inflammation. By supporting the system with tonics, and bringing the tumour to suppuration, the man completely recovered.

Gen. III. Spec. I. β L. Salacitas senilis. Salacity of age.

ENTONIC SALACITY, or that of a robust and sanguine temperament, is not always so easily remedied as might at first be supposed. Copious venesections, purgatives, and a reducent diet, and this succeeded by a regular use of neutral salts, and especially of nitre, will often, indeed, be found highly beneficial. But the erethism occasionally becomes chronic, and defies the effects of all medicines whatever, and is excited by the slightest sensible causes, or even by the power of imagination*; and, where there is an excess of irritability in the constitution, and the patient, from a principle of chastity, has sedulously restrained himself from all immoral indulgences, the nervous system, and even the mind itself, has sometimes suffered in a very distressing degree. One or two examples of this we have already noticed under ECPHRONIA *Mania*, or madness†; and it is hardly worth while to dwell further upon the subject. The natural cure is a suitable marriage wherever this can be accomplished; but unless the union be of this character, it will often be attempted in vain. Professor Frank of Vienna, in his System of Medical Polity, relates the case of a lady of his acquaintance, of a warm and amorous constitution, who was unfortunately married to a very debilitated and impotent man; and who, although she often betrayed unawares, by her looks and gestures, the secret fire that consumed her,

γ L. Salacitas entonica. Salacity of full habit.

Curative process.

Mind sometimes suffers from a transfer of morbid action;

or the entire system from general irritation.

* Swed. Nov. Nosol. Syst. I. p. 231.

† Vol. IV. p. 98.

GEN. III. SPEC. I. γ L. Salacitas entonica. Salacity of full habit. Treatment.

yet from a strong moral principle resisted all criminal gratification. After a long struggle her health at last gave way: a slow fever seized her, and released her from her sufferings.

δ L. Salacitas assueta. Salacity of a debauched life. Remedial treatment.

The SALACITY OF A DEBAUCHED LIFE, or lechery produced and confirmed by habit, can only be cured by a total change of habit: which is a discipline that the established debauchee has rarely the courage to attempt. Exercise, change of place and pursuits, cooling laxatives, and a less stimulant diet than he will commonly be found accustomed to, may assist him in the attempt: but in general the mind is as corrupt as the body, and the case is hopeless. He perseveres, however, at his peril, for with increasing weakness, he will at length sink into all the miserable train of symptoms which characterize that species of marasmus which is usually expressed by the name of tabes dorsalis, and which we have described already*.

SPECIES II.

LAGNESIS FUROR.

Lascivious Madness.

APPETENCY UNBRIDLED, AND BREAKING THE BOUNDS OF MODEST DEMEANOUR AND CONVERSATION: MORBID AGITATION OF BODY AND MIND.

GEN. III. SPEC. II. Causes.

MOST of the causes of the preceding species are causes of the present, though it shows itself less frequently at the age of puberty. It is in fact very nearly related to the species SALACITAS, though the local irritation is more violent, and the mind participates more generally and in a

* Vol. III. Cl. III. Ord. IV. Gen. III. Spec. IV.

very different manner. Under the first, the patient has a sufficiency of self-command to conduct himself at all times with decorum, and not to offend the laws and usages of public morals; and, if, as is rarely the case however, the mind should at length become affected, it is rather by a transfer of the morbid irritation than an extension of it, so that patients thus afflicted very generally lose the venereal erethism, and show no reference to it in the train of their maniacal ideas. In lacivious madness, on the contrary, this last symptom continues in its utmost urgency, all self-command is broken down, the judgment is overpowered, the imagination enkindled and predominant, and the patient is hurried forward by the concupiscent fury like the brute creation in the season of heat, regardless equally of all company and all moral feeling. As it occurs in males it is the satyriasis *furens* of Cullen: as it occurs in females it is the nymphomania *furibunda* of Sauvages.

Gen. III. Spec. II. Lagnesis Furor. Lascivious madness.

Pathology.

Mind suffers from an extension of the erethism, rather than a transfer of morbid action.

The pulse is quick, the breathing short, the patient is sleepless, thirsty, and loathes his food; the urine is evacuated with difficulty, and there is a continual fever. In women the disease is often connected with an hysterical temperament, and even commences with a semblance of melancholy*; and I once had an instance of it, from local irritation, shortly after child-birth. The child having suddenly died, and there being no more demand for a flow of milk, the fluid was repelled from the breasts with too little caution, and the uterine region, from the debility it was yet labouring under, became the seat of a transferred irritation. Among females the disease is strikingly marked by the movements of the body, and the salacious appearance of the countenance, and even the language that proceeds from the lips. There is often, indeed, at first some degree of melancholy, with frequent sighings; but the eyes roll in wanton glances, the cheeks are flushed, the bosom heaves, and every gesture exhibits the lurking desire, and is enkindled by the distressing flame that burns within.

Description.

* Delius, Advers. Fascic. 1.—Belol, Furor Uterinus, Melancholicus Effectus, Paris, 1621.

Gen. III. Spec. II. Lagnesis Furor. Lascivious madness.

In some cases it has unquestionably proceeded from the perpetual friction of an enormous clitoris, making an approach, from its erection, to what Galen calls a female priapism. Büchner, Schurig*, and Zacutus Lusitanus† give numerous examples of this; and Bartholin has the case of a Venetian woman of pleasure, whose clitoris was rendered bony by frequent use, and consequently became a source of constant irritation.

Sometimes produced by the friction of an enormous clitoris.

In hot climates this kind of enlargement and elongation is by no means uncommon, and, as it becomes a source of uncleanliness, as well as of undue excitement, circumcision or a reduction of the clitoris to its proper size, has been often performed with advantage. The same operation has been proposed for the case before us, and, in some instances, it has succeeded completely. "A young woman", says Mr. Richerand, "was so violently affected with this disease, as to have recourse to masturbation, which was always accompanied with profuse emissions; and which she repeated so frequently as to reduce herself to the last stage of marasmus. Though sensible of the danger of her situation, she was not possessed of self-command enough to resist the orgastic urgency. Her parents took her to Professor Dubois, who, upon the authority of Levret, proposed an amputation of the clitoris, which was readily assented to. The organ was removed by a single stroke of the bistoury, and all hemorrhage prevented by an application of the cautery. The wound healed easily, and the patient obtained a radical cure of her distressing affection"‡.

This enlargement frequent in hot climates: and at times relieved by circumcision: which has been performed with success in the present variety.

General treatment.

Where the cause cannot be easily ascertained we must employ a general plan of cure. If there be plethora or constitutional fulness, venesection should never be omitted; and, in most cases, cooling laxatives, a spare diet, with acid fruits and vegetables, cold bathing, local and general, will be found useful. Nitre, by attenuating the crasis of the blood, and diminishing its impetus, has often proved beneficial; and to this may be added conium, aco-

* Gynæcolog. p. 2. 17. † Prax. Admir. Lib. II. Obs. 91.
‡ Richerand, Nosographie Chirurgicale, &c.

nite and other narcotics. Camphor, which acts upon another principle, is a favourite medicine with many, and is also well worth a trial.

GEN. III. SPEC. II. Lagnesis Furor. Lascivious madness. Treatment.

From the infuriate state of the mind in most cases of this malady Vogel has arranged both satyriasis and nymphomania as species of MANIA. But this is incorrect; the fury of the mind is merely symptomatic. Parr, on the contrary, has ranked it under LAGNESIS, to which, with great perversion, he applies the term hallucinatio *erotomania* or love-sickness, more properly a variety of EMPATHEMA *desiderii*, and which, in the present, and most other systems, is, therefore, regarded as a mental malady.

Satyriasis. Nymphomania.

Love-sickness, however, may sometimes be an occasional or exciting cause, and its symptoms may be united with the complaint, and even add to the general effect, of which the History of the Academy of Sciences affords an instance*: but in itself, it is, as we have already shown, altogether a disease of a different kind, and even nature; and where it becomes blended with concupiscent fury it must be from a concurrence of some of the special causes of the latter, either general or local, which we have just pointed out.

Love-sickness an occasional though very rare cause.

In males the disease has led to quite as much exhaustion as in females: Bartholin gives an example of a hundred pollutions daily.

In males a hundred pollutions daily.

* Ann. 1764. p. 26.

GENUS IV.

AGENESIA.

Male Sterility.

INABILITY TO BEGET OFFSPRING.

GEN. IV. Origin of the generic term.

THE generic term is a compound from *α*, negative, and *γίνομαι*, "to beget", and will be found to comprehend the three following species, derived from impotency of power or energy; an imperfect emission where the power is adequate; or an incongruity in the copulative influences or fluids upon each other.

1. AGENESIA IMPOTENS. MALE IMPOTENCY.
2. ——— DYSSPERMIA. SEMINAL MIS-EMISSION.
3. ——— INCONGRUA. COPULATIVE INCONGRUITY.

A like defect sometimes among plants.

Among plants we sometimes meet with a like generative disability; occasionally from imperfectly formed styles or stigmas, stamens or anthers; sometimes from a suppression of farina, and sometimes from a total destitution of seeds: which last defect is common to bromelia *Ananas*; musa *paradisiaca*, or Banyan; artocarpus *incisa* or bread-fruit tree; and berberis *vulgaris* or common berberry.

SPECIES I.

AGENESIA IMPOTENS.

Male Impotency.

IMPERFECTION OR ABOLITION OF GENERATIVE POWER.

Gen. IV. Spec. I. The anaphrodisia of some authors.

THE species before us is, perhaps, more generally called by the nosologists anaphrodisia, though this last term has been used in very different senses; sometimes importing a want of desire, sometimes inability, sometimes both; and sometimes only a particular kind of inability resulting from atony alone. The third species has never, hitherto, so far as the author knows, been introduced into any nosological arrangement, although the reader will probably find, as he proceeds, sufficient ground for its admission. And even the first and second, closely as they are connected by nature, have rarely, if ever, been introduced before under the same common division, but been regarded as distinct genera belonging to distant orders or even classes, and arranged with diseases that have little or no relation to them, of which numerous examples are given in the volume of Nosology.

Impotency in males may proceed from two very distinct causes, showing themselves in very different ways, and laying a foundation for the following varieties:

α Atonica.	Atonic impotency.
β Organica.	Organic impotency.

α A. Impotens atonica. Atonic impotency. Common causes.

In the FIRST of these there is a direct imbecility, or want of tone; produced chiefly by excess of indulgence, long-continued gleet, or a paralytic affection of the generative organs. It has also been occasioned by a violent contusion on the loins, or a fall on the nates*.

* Hildan. Cent. VI. Obs. 59.

GEN. IV. SPEC. I. α A. Impotens atonica. Atonic impotency.

Under the two last causes a cure is often effected by time, and local tonics and stimulants, especially cold-bathing: and the same process will frequently succeed where the weakness has followed upon a chronic gleet: in which we may also employ the course of remedies which have already been recommended for this complaint *.

Mode of treatment when from debility or local injury.

Where the impotency results from a paresis or paralysis of the local nerves, or has been brought on by a life of debauchery, the case is nearly hopeless. We have heard much of aphrodisiacs, but there is none on which we can depend in effects of this kind. Wine, which is the ordinary stimulant in the case before us, will rarely succeed even in a single instance, and where it has done so, it has increased the debility afterwards. It is, in truth, one of the most common causes of the disease itself.

Paresis or paralysis nearly hopeless.

Aphrodisiacs a name without a thing.

Cantharides.

Cantharides have often been employed, but in the present day they are deservedly distrusted, and flourish rather in proverbs than in practice. Their effect, as a local stimulant, shows itself rather on the bladder and prostate gland than on the testes, and as a general irritant in increasing the heat and action of the whole system, in which the testes may, perhaps, sometimes have participated. "They are," says Dr. Cullen, "a stimulant and heating substance, and I have had occasion to know them, taken in large quantity as an aphrodisiac, to have excited violent pains in the stomach, and a feverish state over the whole body." †

Verticillate plants.

Many of the verticillate plants, as mint and pennyroyal, have been tried in a concentrated state for the same purpose, but with different, and even opposite effects, in the hands of different practitioners. To the present hour they are supposed by many to stimulate the uterus specifically, while they take off the venereal appetency in males. Upon sober and impartial trials, however, they seem to be equally guiltless of both: and may as readily be relinquished for such purposes as the nests of the Java swallow, which are purchased at a high price as a power-

Nests of the Java swallow.

* Art. Nat. Cur. Vol. v. Obs. 59. † Mat. Med. Vol. II. p. 563.

ful incentive, and form an extensive article of commerce in the East.

GEN. IV. SPEC. I. α A. Impotens atonica. Atonic impotency.

The best aphrodisiacs are warm and general tonics, as the stimulant bitters, and the metallic salts, especially the preparations of iron. Ginseng, as an aromatic bitter, has a just claim to a further trial than it seems hitherto to have received. In China it has for ages been in high esteem, not only as a general restorative and roborant, but particularly in seminal debilities. Dr. Cullen appears to have thrown it out of practice by telling us that he knew "a gentleman a little advanced in life, who chewed a quantity of this root every day for several years, but who acknowledged that he never found his venereal faculties in the least improved by it." This is no doubt true, but the merits of a medicine are not to be decided by a single experiment of so very loose a kind.

Best aphrodisiacs tonics of different kinds.

Ginseng, its pretensions.

Local irritants, in many cases, have undoubtedly been of use, as blisters, caustics, and setons. Electricity is said to have been still more extensively serviceable; and friction with ammoniated oil or spirits, or any other rubefacient, is fairly entitled to a trial. Stinging with nettle-leaves (urtica *urens*) was, at one time, a popular remedy, and flagellation of the loins* or nates†, or both, still more so. The principle is the same, and we hence account for the success which is said to have attended all these in particular cases.

Local irritants.

In ORGANIC IMPOTENCY, forming our second variety, the chance of success is generally hopeless. This proceeds from a misformation or misorganization of the parts, either natural or accidental: as an amputated, injured, or enormous penis, or a defect or destitution of the testes. Plater introduces brevity or exility of the penis‡ among the causes, but these evils are generally overcome by habit. An incurvated, retracted, or otherwise distorted form is also mentioned by many writers, but these seem rather to belong to the ensuing species. An unaccommodating

β A. Impotens organica. Organic impotency.

Causes.

* Meibom. de Flagrorum usû in re Venereâ.

† Riedlin, Linn. Med. 1696. p. 6. ‡ Observ. Libr. I. pp. 249. 250.

GEN. IV. SPEC. I. β A. Impotens organica. Organic impotency.

bulk of the organ seems to have been no uncommon cause*. Schenck gives an instance of this kind in which the bulk was produced by the monstrosity of a double penis†; and Albinus relates a case of a divorce obtained against a husband, from inability to enter the vagina *ob penem inormem*‡. A similar litigation with divorce is recorded by Plater §.

How far a retention of the testes may produce it.

It has been doubted whether a retention of the testes in the abdomen, or in the path of their descent, will necessarily produce impotency. Swediaur distinctly affirms that impotency is not a consequence, and points out the importance of rightly distinguishing between a real and an apparent deficiency in respect to the one or the other of these two cases ‖.

SPECIES II.

AGENESIA DYSSPERMIA.

Seminal Misemission.

IMPERFECT EMISSION OF THE SEMINAL FLUID.

GEN. IV. SPEC. II. Dysspermatismus of many authors.

THIS is the dysspermatismus, or, as it is usually but incorrectly spelt, dy-spermatismus of authors. The termination is varied, not merely on account of greater brevity and simplicity, but in conformity with the parallel Greek compounds, polyspermia, gymnospermia, aspermia, terms well known to every botanist, and the two former of which are elegantly introduced into the Linnéan vocabulary.

* Schurig. Gynæcolog. p. 226.—Wadel, Pathol. Sect. III. p. 11. Observ. Lib. IV. N. 2. 9.

† Dissert. de Inspectione corporis, forensis, in causis matrimonialibus fallaeibus et dubiis. Hall. 1740.

§ Observ. Lib. I. p. 250. ‖ Nov. Nosol. Syst. Vol. II. p. 351.

Gen. IV. Spec. II. Agnesia Dyaspermia. Seminal misemission.

Imperfection or defect of emission proceeds from numerous causes, accompanied with some change of symptoms as appertaining to each, and hence laying a foundation for the following varieties:

α Entonica. Entonic misemission.	The imperfect emission proceeding from super-erection or priapism.
β Epileptica. Epileptic misemission.	Rendered imperfect by the incursion of an epileptic spasm produced by sexual excitement during the intercourse.
γ Anticipans. Anticipating misemissions.	The discharge ejected hastily, prematurely, and without due adjustment.
δ Cunctans. Retarding misemission.	The discharge unduly retarded from hebetude of the genital organs: and hence not accomplished till the orgasm, on the part of the female, has subsided.
ε Refluens. Refluent misemission.	The discharge thrown back into the vesiculæ seminales or the bladder, before it reaches the extremity of the penis.

α A. Dyspermia entonica. Entonic misemission. Strikingly exemplified.

Of the first, or ENTONIC VARIETY, examples are by no means uncommon. Dr. Cockburn gives an instance in a young noble Venetian, who, though married to a fine and healthy young lady, had no seminal emission in the act of union, notwithstanding there was a vigorous erection, whilst he could discharge very freely in his dreams*. He was greatly afflicted, as were also his family, by such a misfortune; and as no remedy could be devised at home, the Venetian ambassadors resident at the different courts of Europe, were requested to consult the most eminent physicians in their various quarters. The case came in this manner under the notice of Dr. Cockburn, who,

* See a similar case in Marcel. Donat. Lib. iv. Cap. 18.

GEN. IV. SPEC. II. β A. Dyspermia entonica. Entonic misemission.

hitting accurately upon the cause of the retention, and ascribing it to the violence of the erection, or rather to the plethora of the vessels of the penis, whose distention produced a temporary imperforation of the urethra, so that the powers which threw out the semen could not overcome the resistance, an effect which probably did not occur in dreaming, advised purgative medicines and a slender diet, which soon produced the desired issue *.

Additional illustration.

I remember, many years ago, a healthy young couple who continued without offspring for seven or eight years after marriage, at which period the lady, for the first time, became pregnant, and continued to add to her family every year till she had six or seven children; and in professional conversation with the father, he has clearly made it appear to me that the cause of sterility, during the above period, was the morbid entony we are now discussing. Time, that, by degrees, broke the vigour of the encounter, effected at length a radical cure, and gave him an offspring he had almost despaired of. Mr. J. Hunter recommends opium in this case, as the best allayer of the undue stimulus.

β A. Dyspermia epileptica. Epileptic misemission. Cause explained.

The SECOND VARIETY, or misemission from the incursion of an epileptic fit, it is not difficult to account for. Persons who are predisposed to epilepsy, are, for the most part, of a highly irritable habit; and wherever the predisposition exists, any accidental excitement, as we have already shown in discussing this affection †, is sufficient to produce a fresh paroxysm: and hence it is seldom more likely to occur than from the perculsion of a sexual embrace. Even death itself has sometimes ensued in consequence of the violence of the venereal paroxysm.

Exemplified.

Examples of epilepsy from this cause, as collected in the public medical records, are numerous. Among men, one of the most famous instances is that of the celebrated Hunnish chief Attila ‡. Morgagni § and Sinbaldus ‖ have given examples among women.

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* Edin. Med. Ep. I. p. 270. † Vol. III. Syspasia Epilepsia, p. 563.
‡ Borelli, Amalth. Med. Hist. p. 161.
§ De Sed. et Caus. Morb. Ep. XXVI. Art. 13.
‖ Geneanthropia, p. 794.

Hence a life of matrimony had better be relinquished by those who are thus afflicted, as well on their own accounts, as on that of their descendants. And where marriage is actually effected, sexual commerce should be sedulously abstained from at the periods in which the disease is accustomed to recur, or during the continuance of those signs by which a paroxysm is usually preceded.

GEN. IV. SPEC. II. β A. Dyspermia epileptica. Epileptic misemission. Celibacy adviseable.

The THIRD and FOURTH VARIETIES, or anticipating and retarding misemission, are put together by Ploucquet under the name of ejaculatio *intempestiva* *, and are equally entitled to this character: while the former is, by Schenck, denominated ejaculatio *præmatura* †.

Where married, abstinence at particular periods. γ A. Dyspermia anticipans. Anticipating misemission.

The anticipating or premature variety evinces great nervous irritability in a delicate or relaxed habit; the plethora of the first or entonic variety would produce the best and most effectual cure; but as this is rarely to be accomplished in a constitution of this kind, tonics, a plain but nutritious diet, especially light suppers, and, more especially still, a bidet of cold water before retiring to bed, form the most effectual means of subduing this precession of generative power. In some cases, the afflux has been so quick as to take place even before the vagina has been fairly entered.

General cause and mode of treatment.

The FOURTH OR RETARDING VARIETY forms a perfect contrast to the preceding. It imports a sluggishness either of constitution or of local erethism, in consequence of which the seminal flow does not take place till the orgasm of the female has subsided, and fatigue, perhaps disgust, has succeeded to desire. Here too, general tonics and local stimulants offer the fairest chance of success; and both stingnettles ‡ and flagellations §, as in some cases of organic impotency, are said to have worked wonders. The variety is generally described under the name of bradyspermatismus.

δ A. Dyspermia cunctans. Retarding misemission. How produced. Mode of treatment.

The REFLUENT VARIETY is chiefly introduced upon the

ε A. Dyspermia refluens. Refluent misemission.

* Init. Biblioth. Tom. IV. p. 61. 4to. Tubing, 1795.
† Observ. Lib. IV. Obs. 46.
‡ Eph. Nat. Cur. Dec. II. Ann. V. App. p. 55.
§ Meibom, and Riedlin, loc. citat.

GEN. IV. SPEC. II. s A. Dyspermia refluens. Refluent misemission.

authority of M. Petit*, whose description has been copied by Sauvages. "It consists," he tells us, "in a reflux of the semen into the bladder or vesiculæ seminales, on account of the narrowness of the urethra, in consequence of which there is no semination during the interunion, and the semen is afterwards discharged with the urine."

How produced.

Where chiefly found.

This narrowness is common to those who have suffered from frequent blenorrhœas, and have hence contracted strictures or scirrhous indurations in the course of the urethral passage, or have the passage blocked up with indurated mucus.

Singular case from Deidier.

Deidier gives a case not very unlike, consisting of a patient who laboured under a fistula opening from the vesiculæ seminales into the rectum; in consequence of which, though sound in every other respect, whenever he embraced his wife scarcely any of the semen escaped from the penis, nearly the whole passing into the intestine, intermixed with a small quantity of urine; and hence his marriage was sterile†.

Medical treatment.

In all these cases the cure of the impotency must depend upon a cure of the local cause of constriction. The dyspermatismus *urethralis*, *nodosus*, and *mucosus* of Sauvages, and Cullen, who has copied from him, are all resolvable into this variety, as proceeding from like causes, and producing a like effect.

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* Mémoires de l'Academie de Chirurgie, I. p. 434.

† Tom. III. Consult. I.

SPECIES III.

AGENESIA INCONGRUA.

Copulative Incongruity.

THE SEMINAL FLUID INACCORDANT IN ITS CONSTITUENT PRINCIPLES, WITH THE CONSTITUTIONAL DEMAND OF THE RESPECTIVE FEMALE.

GEN. IV. SPEC. III. The species new to nosological arrangement, which has hitherto separated the co-species very remotely.

ALL the species of this genus are closely connected: yet it is only the first two that have hitherto been noticed by nosologists: nor is there any preceding system that I am aware of, under which even these two have been introduced into the same subdivision. In almost every instance, indeed, they have been regarded as distinct genera belonging to distant orders or even classes, and arranged with diseases that have little or no relation to them. Thus, in Sauvages, impotentia, by him called anaphrodisia, occurs in the second order of his sixth class, united with such diseases as "loss of thirst" and "desire of eating"; while dysspermia, or dysspermatismus is carried forward to the third order of his ninth class. In Cullen these diseases occur, indeed, in the same class, a very improper one, that of LOCALES, but under different orders of this class; impotentia being arranged under the second order, with the morbid cravings of the alimentary canal, and some of those of the mind, as nostalgia; and dysspermia being placed under the fifth order entitled *epischeses* or SUPPRESSIONS.

This species derived from actual observations and incidental hints.

The present species is, for the first time, so far as the author knows, introduced into a nosological system; and is derived from personal observation in full accordance with the scattered remarks of several other writers and

GEN. IV. SPEC. III. Agenesia incongrua. Copulative incongruity.

practitioners. The principle upon which the species is founded belongs, strictly, to the general doctrine of conception, and has been already explained in the Physiological Proem to the present class. It will hence be sufficient to throw out a few additional hints for the purpose of bringing the principle more immediately home to the disease before us, and supporting the propriety of its introduction into the general register.

General physiology.

Every one must have noticed occasional instances in which a husband and wife, apparently in sound health and vigour of life, have no increase while together; either o whom, nevertheless, upon the death of the other, has become the parent of a numerous family; and both of whom, in one or two curious instances of divorce, upon a second marriage. In various instances, indeed, the latent cause of sterility, whatever it consist in, seems gradually to diminish, and the pair that for years was childless, is at length endowed with a progeny. In all this there seems to be an incongruity, inaccordancy, or want of adaptation in the constituent principles of the seminal fluid of the male to the sexual organization of the respective female; or, upon the hypothesis of the epigenesis, which we have already illustrated, to the seminal fluid of the female. Writers, strictly medical, have not often adverted to this subject, though it is appealed to and for the most part with approbation, by physiologists of all ages and countries. Sauvages, however, evidently alludes to and admits such a cause in his definition of dysspermatismus *serosus*, which is as follows: " Ejaculatio seminis aquosioris, adeoque ad genesim inepti, quæ species est frequentissimum sterilitatis virilis principium." He illustrates his definition by a case which occurred to Haguenot and Chaptal, who attributed it to the cause in question, and refers for other examples to Etmuller. Cullen expresses himself doubtfully upon this species, " De dysspermatismo seroso Sauvagesii ", says he, " mihi non satis constat." Yet his own gonorrhœa *laxorum*, in the present system spermorrhœa *atonica*, and which he explains " humor plerumque pellucidus, sine penis erectione, sed cum libidine, in vigilante, ex urethra

Dysspermatismus serosus of Sauvages.

Gonorrhœa laxorum of Cullen.

fluit", makes so near an approach to it, that the physiologist who admits the one can find little difficulty in admitting the other. The resemblance is, indeed, close and striking; in the latter disease the individual labouring under it, emits involuntarily, and *without coition*, or even erection, but with a libidinous sensation, a pellucid fluid, apparently of a seminal character, affirmed positively by Sauvages, from whom Cullen derives his species, and to whom he refers, to be an "effluxus SEMINIS"; while, in the former, the same dilute and effete semen, with difficult and imperfect erection, is poured forth *during coition*.

GEN. IV. SPEC. III. Agenesia incongrua. Copulative incongruity.

In like manner, Forestus speaks of a proper gonorrhœa, or involuntary emission of seminal fluid, produced *ex aquositate**, from too watery a condition of the secretion: Timæus, of the same disease occasioned *ex semine acri*†, by a secretion of an acrimonious semen: and Hornung, of hysterics occasioned in married women who are sterile from an "immissio *frigidi* seminis"‡: an expression adopted from, or at least employed by, Ballonius§, and supported by Schurig‖, and Ab Heer¶.

Further illustrated.

The explanation, however, now offered, takes a more comprehensive view of the subject, by supposing that the seminal fluid may be secreted, not merely in a state of morbid diluteness, but, under various modifications, even in a state of health, of such a condition as to render it inadequate to the purposes of generation in female idiosyncrasies of certain kinds, while it may be perfectly adequate in those of other kinds. In agricultural language, it supposes that the respective seed may not be adapted to the respective soil, however sound in itself. So, Parr tells us, on another occasion that, ". In some instances the semen itself seems defective in its essential qualities."**

Pathological illustrations applied to the present species, and its essence pointed out.

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* Lib. XXVI. Obs. 12.
† Cas. p. 188.
‡ Cista. p. 487.
§ Opp. t. p. 120.
‖ Spermatologia, p. 21.
¶ Observ. Rar. N. 10.
** Diss. Art. Anaphrodisia.

GEN. IV. SPEC. III. Agenesia incongrua. Copulative incongruity.

Mode of treatment.

Here, again, the mode of treatment must be regulated by a close attention to the nature of the cause. In most cases, whatever will tend to invigorate the system generally will best tend to cure the sterility: as a generous diet, exercise, the cold-bath, and particularly the use of the bidet or local cold-bath. With these may be combined the warm and stimulant resins and balsams, as guaiacum, turpentine, copaiba; and the oxydes of iron, zinc, and silver.

Abstinence by consent, for many months, has, however, proved a more frequent remedy than any other, and especially where the intercourse has been so incessantly repeated as to break down the staminal strength: and hence the separation produced by a voyage to India has often proved successful.

GENUS V.

APHORIA.

Female Sterility. Barrenness.

INABILITY TO CONCEIVE OFFSPRING.

Gen. V. Origin of generic term.

APHORIA (ἀφορία) "sterilitas", "infecunditas", from α, negative, and φέρω "fero", "pario", is a term in common use among the Greek writers. It is singular that the morbid condition it imports has no distinct place in any of our most esteemed nosologists. It may possibly be intended under the anaphrodisia of several of them, though in none of them has the genus any one species that expressly applies to female barrenness.

The proper species belonging to it are the following:—

1. APHORIA IMPOTENS. BARRENNESS OF IMPOTENCY.
2. ——— PARAMENICA. BARRENNESS OF MISMENSTRUATION.
3. ——— IMPERCITA. BARRENNESS OF IRRESPONDENCE.
4. ——— INCONGRUA. BARRENNESS OF INCONGRUITY.

SPECIES I.

APHORIA IMPOTENS.

Barrenness of Impotency.

IMPERFECTION OR ABOLITION OF CONCEPTIVE POWER.

Gen. V. Spec. I. THIS species runs precisely parallel with the same disease in males already described under AGENESIA *impotens* and consequently offers us the two following varieties:

α Atonica.	Atonic barrenness.
β Organica.	Organic barrenness.

α A. Impotens atonica. Atonic barrenness. IN ATONIC BARRENNESS there is a direct imbecility or want of tone, rather than a want of desire: and the ordinary causes are a life of intemperance of any kind, and especially of intemperate indulgence in sexual pleasures, a chronic leucorrhœa, or paralytic affection of the generative organs. It has also been occasioned by violent contusions in the loins, or the hypogastric region, and by overexertion in walking.

Causes.

Treatment. The plan of treatment is to be the same as already laid down under atonic sterility or impotency in males, yet it is seldom that any treatment has afforded success under this variety.

β A. Impotens organica. Organic barrenness. ORGANIC BARRENNESS is produced by some structural hindrance or defect, whether natural or accidental. And this may be of various kinds: for the vagina may be imperforate and prohibit not only all intermission of semen, but an entrance of the penis itself. The ovaria may be defective, or even altogether wanting, or not duly developed, or destitute of ovula; or the fimbriæ may be defective, and incapable of grasping the uterus; or the Fallopian tube may be obstructed, or impervious, or wanting;

Causes.

in all which cases barrenness must necessarily ensue. In the case of an impervious vagina, however, unless there be a total occlusion, conception will sometimes follow: for it has occurred where the passage has been so narrow as not to admit the penis; and occasionally indeed, when, with the same impediment, a rigid and unbroken hymen has offered an additional obstacle, of which the medical records contain abundant examples. Ruyset, gives us a singular case of a hymen found unbroken at the time of labour.

Gen. V. Spec. I. β A. Impotens organica. Impotent barrenness.

Conception may occur in an impervious vagina if the occlusion be not total.

In all these instances the hymen seems to have been placed high up in the passage, so as to allow the penis to obtain a curtailed entrance, and to produce its shock; when the occlusion not being complete, a part of the semen has passed through the aperture, and effected its ordinary result.

These, however, are rare instances: for the impediment before us is, in common cases, a sufficient bar not only to conception, but to copulation. The author was lately consulted by a very amiable young couple in an instance of this kind, to whom the want of a family was felt as a very grievous affliction. The hymen had a small aperture, but was tense and firm, and the ordinary force of an embrace was not sufficient to break it. He explained the nature of the operation to be performed, and added that he had no doubt of a successful issue. The lady was reluctant to submit herself to the hands of a surgeon, and hence with equal courage and judgment became her own operator. The impediment was completely removed, and she has since had several children.

But the examples rare.

Illustrated.

In a few instances, however, this will not answer, for there is a natural narrowness or stricture, sometimes found in the vagina, which cannot be overcome, at least without a severer operation than most women could be induced to submit to; that I mean of laying it open through the whole length of the contraction. A sponge tent, however, gradually enlarged, or a bougie, has sometimes succeeded. Surig gives an account of a dissolution of marriage in consequence of an impediment of this kind.*

Vagina itself sometimes naturally too narrow, or narrowed by a stricture. Remedial process.

* Gynæcolog. p. 223.

SPECIES II.

APHORIA PARAMENICA.

Barrenness of Mismenstruation.

CATAMENIAL DISCHARGE MORBIDLY RETAINED, SECRETED WITH DIFFICULTY, OR IN PROFUSION.

GEN. V. SPEC. II. Menstruation not absolutely necessary to impregnation.

Explained.

IT is not always necessary to impregnation that a female should menstruate: for we have already observed* that a retention of menses, or rather a want of menstruation, is not always a disease; but only where symptoms occur which indicate a disordered state of some part or other of the body, and which experience teaches us is apt to arise in consequence of such retention. In some cases, there is great torpitude or sluggishness in the growth or developement, or proper erethism of the ovaries, and menstruation is delayed on this account, and in a few rare instances we have remarked that it has occurred for the first time after sixty years of age. It may hence easily happen, and we shall presently have occasion to show that it often has done so, that a woman becomes married who has never been subject to this periodical flux: and although it is little to be expected that she should breed till the sexual organs are in a condition to elaborate this secretion, yet if such condition take place after marriage, impregnation may instantly succeed and prohibit or postpone the efflux which would otherwise take place†.

But a flow of catamenia necessary

But where there is a manifest retention of the catamenial flux producing the general symptoms of disorder which we noticed when describing this disease, it is rarely that con-

* Vol. IV. Paramenia obstructionis, p. 44.

† Class V. Order III. Carpotica, Introductory remarks.

ception takes place, in consequence of the morbid condition of the organs that form its seat.

Gen. V. Spec. II. Aphoria paramenica. Barrenness of mismenstruation.

For the same reason it seldom occurs where the periodical flow is accompanied with great and spasmodic pain, is small in quantity, and often deteriorated in quality. And if, during any intermediate term, conception accidentally commence, the very next paroxysm of distressing pain puts a total end to all hope by separating the germ from the uterus.

where once established: and hence menostation a cause of barrenness:

But there must be a healthy degree of tone and energy in the conceptive organs, as well as of ease and quiet, in order that they should prove fruitful: and hence, wherever the menstrual flux is more frequently repeated than in its natural course, or is thrown forth, even at its proper time, in great profusion, and, as is generally the case, intermixed with genuine blood, there is as little chance of conception as in difficult menstruation. The organs are too debilitated for the new process; and not unfrequently there is as little desire as there is elasticity.

Difficult menstruation a cause, and why.

Profuse menstruation a cause, and why.

Having thus pointed out the general causes and physiology of barrenness when a result of mismenstruation, it will be obvious that the cure must depend upon a cure of the particular kind of morbid affection that operates at the time and lays a foundation for the disease, of all which we have already treated under the different species of the genus PARAMENIA, and need not repeat what is there laid down.

Mode of treatment.

SPECIES III.

APHORIA IMPERCITA.

Barrenness of Irrespondence.

STERILITY PRODUCED BY PERSONAL AVERSION OR WANT OF APPETENCY.

Gen. V. Spec. III.

It is not perhaps altogether impossible, that impregnation should take place in the case of a rape, or where there is

GEN. V. SPEC. III. Aphoria impercita. Barrenness of irrespondence.

a great repugnancy on the part of the female, for there may be so high a tone of constitutional orgasm as to be beyond the control of the individual who is thus forced, and not to be repressed even by a virtuous recoil, and a sense of horror at the time. But this is a possible rather than an actual case, and though the remark may be sufficient to suspend a charge of criminality, the infamy can only be completely wiped away by collateral circumstances.

Impregnation may take place under a rape.

The effect possible under a particular kind of constitution; but very rare and mostly to be suspected.

In ordinary instances, rude, brutal force is never found to succeed against the consent of the violated person. And for the same reason, wherever there is a personal aversion, a coldness, or reserve, instead of an appetency and pleasure, an irrespondence in the feelings of the female to those of the male, we have as little reason to hope for a parturient issue. There must be an orgastic shock, or perculsion sufficient to shoot off an ovulum from its bed, and to urge the fine and irritable fimbriæ of the Fallopian tube to lay hold of the uterus and grasp it tight, by which alone a communication can be opened between this last organ and the ovarium, or the seed cannot reach home to its proper soil, and produce a harvest. So observes the first didactic poet of ancient Rome, addressing himself to the Generative Power, in the language not of the voluptuary but of the physiologist:

Aversion, coldness, or reserve prohibit conception, and why.

> —per maria, ac montes, fluviosque rapaceis
> Frundiferasque domos avium, camposque virentes,
> Omnibus INCUTIENS blandum per pectora amorem,
> Efficis, ut CUPIDE generatim secla propagant *.
>
> So through the seas, the mountains, and the floods,
> The verdant meads, and woodlands fill'd with song,
> SPUR'D BY DESIRE each palpitating tribe
> Hastes, at thy shrine, to plant the future race.

Hence sufficient ground for the present species.

The cause is clear, and the effect certain, but it is a disease immedicable by the healing art, and can only be attacked by a kind, assiduous, and winning attention, which, however slighted at first, will imperceptibly work into the cold and stony heart, as the drops of rain work into the

* De Rer. Nat. i. 17.

pavement. It should teach us, however, the folly of forming family connexions and endeavouring to keep up a family name where the feelings of affection are not engaged on both sides.

GEN. V. SPEC. III. Aphoria impercita. Barrenness of irrespondence.

Important lesson to be learnt from the above facts.

SPECIES IV.

APHORIA INCONGRUA.

Barrenness of Incongruity.

THE CONCEPTIVE POWER INACCORDANT WITH THE CONSTITUENT PRINCIPLES OF THE SEMINAL FLUID RECEIVED ON THE PART OF THE MALE.

THIS species runs precisely parallel with the third under the preceding genus AGENESIA *incongrua*, and the physiological and therapeutic remarks there offered will equally apply to the present place.

GEN. V. SPEC. IV. Parallel with agenesia incongrua in cause, effect, and mode of treatment.

GENUS VI.

ÆDOPTOSIS.

Genital Prolapse.

PROTRUSION OF ONE OR MORE OF THE GENITAL ORGANS, OR OF EXCRESCENCES ISSUING FROM THEM, INTO THE GENITAL PASSAGE; IMPAIRING OR OBSTRUCTING ITS COURSE.

GEN. VI. Origin of generic term.

ÆDOPTOSIS is a compound term from αἰδοῖον, "inguen", pl. αἰδοῖα "pudenda", whence αἰδῶς "pudor", and πτῶσις, "lapsus". In like manner Sauvages and Sagar use Ædopsophia, applying the term to the meatus urinarius, as well as to the uterus. Sauvages, however, expresses the present disease, but less correctly, by hysteroptosis, for this, with strict propriety, can denote only one of the species that fall within its range, namely displacement of the uterus.

The genus embraces the five following species:

1. ÆDOPTOSIS UTERI. FALLING DOWN OF THE WOMB.
2. ——— VAGINÆ. PROLAPSE OF THE VAGINA.
3. ——— VESICÆ. PROLAPSE OF THE BLADDER.
4. ——— COMPLICATA. COMPLICATED GENITAL PROLAPSE.
5. ——— POLYPOSA. GENITAL EXCRESCENCE,

SPECIES I.

ÆDOPTOSIS UTERI.

Falling down of the Womb.

PROTRUSION OF THE UTERUS INTO THE VAGINA.

THIS may take place in several ways, and hence offers the following varieties: GEN. VI. SPEC. I.

α Simplex.	Simple descent of the womb.
β Retroversa	Retroverted womb.
γ Inversa.	Inverted womb.

In the FIRST VARIETY, or that consisting of a simple descent of the uterus, the organ retains its proper posture and figure. Different names are frequently given to different degrees of this variety. If the descent be only to the middle of the vagina, it is called *relaxatio uteri;* if to the labiæ, *procidentia;* if lower than the labiæ, *prolapsus.* The distinction is of trifling importance; the causes are the same in all, which are those of debility or violence. The disease is hence most common to women who have had numerous families; but is occasionally met with in virgins after straining, using violent exercise in dancing, or running, and hence sometimes in girls of a very early age. Professor Monro gives an example of its occurring in an infant of not more than three years old, preceded by a regular menstruation, or more probably a discharge of blood, every three weeks or month, from the vagina, accompanied with considerable pain in the belly, loins, and thighs. The case was too long neglected as being supposed of little importance; and the uterus, which at first appeared to be a very small body just peeping out of the vagina, descended lower and lower, continually

α Æ. uteri simplex. Simple descent of the womb.

Relaxatio uteri, what.

Procidentia, what.

Prolapsus, what.

Causes.

Occasionally found in virgins and even infants.

Example.

GEN. VI. SPEC. I. α Æ. uteri simplex. Simple descent of the womb.

increasing in size, till at length it became as big as a hand-ball, and entirely blocked up the passage of the pudendum. At this time the sanguineous discharge had ceased its returns; but a considerable secretion of leucorrhœa supervened. The uterus seems at last to have been strangulated, gangrene ensued, and was soon succeeded by death*.

History and description.

The disease first shows itself by what is called a bearing down of the womb, which is a slight descent produced by a relaxed state of its ligaments, and its own weight when in an upright position. There is, at this time, an uneasy sensation in the loins, as well as in the inguinal regions, often extending to the labia, and particularly in walking or standing. There is also an augmented flow of the natural mucous secretion in consequence of the local irritation, which by degrees becomes acrimonious, and excoriates the surrounding parts, and is accompanied with an obstinate leucorrhœa. The stomach sympathizes with the morbid state of the womb, the appetite fails, the bowels become irregular and flatulent, and the animal spirits are dejected.

Curative process. Restoration.

In attempting a cure we must first restore the prolapsed organ to its proper position, and then retain it there, by a support introduced into the vagina, which should be continued till the ligaments of the womb have recovered their

Pessaries.

proper tone. Various pessaries have been invented for this purpose, but that made of the caoutchouc or elastic gum, with a ligature to withdraw it at option, appears to

Astringent injections and other tonics.

be one of the most commodious. Astringent injections, as a solution of alum or sulphate of zinc, of gall, oak-bark or green-tea, or even of cold water, will generally be found useful; as will also spunging the body with cold-water, or using a hip-bath of sea-water. Mr. Clarke prefers the vegetable to the mineral injections, having found the latter sometimes too irritating†. New and rough port-wine, diluted with an equal quantity of cold water, has proved

* Edin. Med. Essays, Vol. III. Art. XVII. p. 282.

† On the Diseases of Females attended by Discharges, Part I.

one of the most valuable injections to which the author has ever had recourse. A sofa or hair mattrass should also be used instead of the relaxing luxury of a down or feather-bed.

GEN. VI. SPEC. I. α Æ. uteri simplex. Simplex descent of the womb.

Dr. Berchelmann in a foreign journal, has recommended a far bolder and more decisive cure, derived from the rash, but successful practice of a woman upon herself. This courageous sufferer having long laboured under a prolapse of the womb, and tried every method in vain, tired out with the continuance of her complaint, cut into the depending substance of the womb with a common kitchen-knife. A considerable hemorrhage ensued; after which, the vessels collapsing, the organ gradually contracted, and ascended into its proper site; and she was radically cured of the disease. Having boasted of her success, the writer informs us that many other women in the neighbourhood, afflicted with the same complaint, applied for her assistance, and derived a like cure from the same operation *.

Scarification or incision.

In cases where the prolapse depends upon a loose and relaxed condition of the uterus, it is highly probable that this bold practice may often be found to succeed, but it must be useless where the relaxation is seated in the ligaments: and the knife, if employed at all, should be applied to an extirpation of the entire organ, which has lately taken place with success in various cases.

Extirpation.

In the RETROVERTED WOMB, the fundus falls down, and becomes the lower part, sometimes from a morbid weight and enlargement, but more usually from a neglected distention of the bladder between the third and fourth month of pregnancy, at which period the fundus is just heavy enough to fall forward, whenever the cervix is pressed upon and elevated by such distention; though after this period the cervix itself is too heavy to be affected by the bladder in this way, and the entire uterus too much enlarged to fall down in any way. The bladder, in this

β Æ. uteri retroversa. Retroverted womb.

Cause and its mode of action.

* Acta Philosophico-Medica Soc. Acad. Scient. Princ. Hassiacæ 4to. Giessæ Cattorum.

Gen. VI. Spec. I. β Æ. uteri retroversa. Retroverted womb. Treatment.

case, must be carefully evacuated, and kept evacuated by a free use of the catheter, which will give the uterus an opportunity of righting itself. But if this should not take place in two or three days, the obstetric practitioner should endeavour to restore the organ to its proper position by introducing the fingers of one hand into the vagina and two fingers of the other hand into the rectum.

γ Æ. uteri inversa. Inverted womb.

The WOMB is INVERTED when at the same time that it is displaced or has fallen down, it is turned inside out. This mischievous condition is most commonly produced by unskilfully and violently pulling away the placenta after delivery: and is only to be remedied by a restoration of the uterus to its proper state before it contracts, without which perpetual barrenness must necessarily ensue, and the patient be subject for life to a difficulty of walking, leucorrhœa, ulceration, and the chance of a scirrhus or cancer.

How produced, and remedied.

SPECIES II.

ÆDOPTOSIS VAGINÆ.

Prolapse of the Vagina.

PROTRUSION OF THE UPPER PART OF THE VAGINA INTO THE LOWER.

Gen. VI. Spec. II. How modified.

Description.

THIS, like the descent of the uterus, may, according to the degree of the disease, be a relaxation, procidence, prolapse, or complete inversion of the organ. Under all which modifications it has a considerable resemblance to a prolapse of the anus. It appears in the form of a fleshy substance protruding at the back part of the vulva, with an opening in the centre or on one side. At first it is soft, but, by continued exposure and irritation, it becomes inflamed, indurated, and ulcerated. The urethra is neces-

sarily carried out of its course: and if the catheter be required it should be employed with its point directed backwards and downwards. Its ordinary causes are those of a prolapse of the womb, and it is to be treated by a like plan of astringent injections and general tonics. Pregnancy commonly performs the best cure: and where this fails, Dr. Berchelmann, from the success which has accompanied incision in the case of a prolapsed uterus, has recommended scarification, which appears well worthy of trial, though the author has not known it put into practice.

GEN. VI. SPEC. II. Ædoptosis vaginæ. Prolapse of the vagina.

Causes.

Cured by pregnancy;

In some cases scarification recommended.

SPECIES III.

ÆDOPTOSIS VESICÆ.

Prolapse of the Bladder.

PROTRUSION OF THE BLADDER INTO THE URINARY PASSAGE.

THIS species is introduced chiefly upon the authority of Sauvages, who gives us two modifications or varieties of it; one in which there is a protrusion of the inner or nervous membrane, in consequence of its separating from the general substance of the bladder, visible in the meatus urinarius, of the size of a hen's egg, subdiaphonous and filled with urine; and the other in which there is a protrusion of the inner membrane of the neck of the bladder into the same passage. He gives a case of the former variety from Noel, who met with it in a virgin, who was from the first peculiarly troubled with a retention of urine, accompanied with frequent convulsive movements. She soon fell a sacrifice to it, and it was on dissection that the state of the tunic was clearly proved. M. de Sauvages queries

GEN. VI. SPEC. III. Two modifications given by Sauvages:

a protrusion of the inner membrane of the bladder:

and of the inner membrane of its neck.

The first modification illustrated.

GEN. VI. SPEC. III. Ædoptosis vesicæ. Prolapse of the bladder.

whether on a recurrence of this case it would be most adviseable to make an opening into the protruding sac, or to extirpate it altogether.

The second variety he tells us is chiefly found among women who have borne many children, or have been injured by blows or other violence on the lower belly. The protruding cyst produced by an inversion of the membrane drops down in the urinary passage to about the length of the little finger, and is sufficiently conspicuous between the labia. Solingen who met with a case of this kind, returned it by a probe, armed at the upper end with a piece of sponge moistened with an astringent lotion; and afterwards endeavoured to retain it in its proper position by a bandage.

The second illustrated.

SPECIES IV.

ÆDOPTOSIS COMPLICATA.

Complicated Genital Prolapse.

PROTRUSION OF DIFFERENT ORGANS COMPLICATED WITH EACH OTHER.

GEN. VI. SPEC. IV.

FROM the connexion of the uterus and the vagina with the bladder, a prolapse of either of the two former is often complicated with that of the latter, giving us the two following varieties:

α Utero-vesicalis. Utero-vesical Prolapse.	Prolapse of the uterus dragging the bladder along with it.
β Vagino-vesicalis. Vagino-vesical Prolapse.	Prolapse of the vagina dragging the bladder along with it.

Under either of these conditions the bladder, being deprived of the expulsory aid of the abdominal muscles, in consequence of its dropping below their action, is incapable of contracting itself sufficiently to evacuate the water it contains: and hence the patient is obliged to squeeze it with her hands or between her thighs.

Gen. IV. Spec. IV. Ædoptosis complicata. Complicated genital prolapse.

General explanation.

The causes and mode of treatment have been already described under the two preceding species. The present is the hysteroptosis *composita* of Sauvages.

SPECIES V.

ÆDOPTOSIS POLYPOSA.

Genital Excrescence.

POLYPOUS OR OTHER CARUNCULAR EXCRESCENCE IN THE COURSE OF THE GENITAL AVENUE.

Gen. VI. Spec. V. Synonyms.

This is the polypus *uteri*, and polypus *vaginæ* of authors: but, strictly speaking, they are less polypi than polypous concretions, since the proper polypus is the fleshy excrescence of the nostrils, as already observed in the first volume*.

The excrescences before us issue both from the uterus and the vagina, and hence form two distinct modifications as follow:

α Uteri. Polypus of the womb.	Issuing with a slender root mostly from the fundus of the uterus, and more or less elongating into the vagina.
β Vaginæ. Polypus of the vagina.	Issuing from the sides of the vagina broad and bulbous.

* Vol. I. 489.

GEN. VI. SPEC. V. Ædoptosis polyposa. Genital excrescence.

The latter excrescences in an incipient state, and particularly when loose and flabby, are sometimes dispersed by stimulant and astringent applications, or a hard compress of sponge or any other elastic material: and, if this cannot be accomplished, they must be destroyed by excision or caustics. It is rarely that they have a neck narrow enough for the application of a ligature.

The vaginal polypus sometimes dispersed by stimulants and astringents: sometimes cured by excision.

Polypous excrescences of the womb, are, however, a disease of much greater severity; since the stomach suffers, in most cases, from sympathy, and consequently the general health, producing all the symptoms we have already noticed under ÆDOPTOSIS *uteri:* which last is not unfrequently a result, if the excrescence be of long continuance, and of considerable weight and magnitude.

Description of uterine polypous excrescences.

Of all sizes and various consistencies.

They are of all sizes, and of various degrees of hardness, from that of a soft and yielding sponge to that of firm and substantial leather. Though they commonly grow from the fundus of the uterus, they have sometimes been found to sprout from its sides, and even its cervix, shooting down to different depths of the vagina, and occupying it more or less completely according to their extent. They

Shape.

are generally round in shape and compact in structure, intersected by membranes running in different directions. Sometimes, however, they are oblong, in which case they usually consist of a loose irregular texture with numerous interstitial cavities. Dr. Baillie, has given various examples of this diseased production in his tables of Morbid Anatomy*.

Mode of treatment.

They have been attempted to be removed in different ways, as by caustics, excision, laceration, and ligature. The last, however, is the only method unaccompanied with danger or uncertainty. Yet even this can rarely be had recourse to while the excrescence continues in the womb; and hence, the usual method is to defer the operation till, from its increase of size and weight, it has descended into the vagina, when the removal cannot be attempted too soon. They have sometimes dropped off

* See especially Fascic. c. IX. Plate IV. 1.

spontaneously, the peduncle having probably decayed or shrivelled away.

Gen. VI. Spec. V. Ædoptosis polyposa.

There is also a variety of excrescence which should not be passed without notice, and which from its peculiar form and feel is called the cauliflower excrescence. It arises usually from the surface of the mouth of the uterus, and spreads into the vagina, rarely or never into the cavity of the womb. To the finger it seems to be a portion of placenta, and consists of a mass of distended blood-vessels surrounded by a membrane through which oozes profusely the serous part of the blood, and scarcely ever, except when severely handled, the red globules. The tumour is not tender nor very sensible. The quantity of discharge is in proportion to the size of the tumour and the action of the uterine vessels. As the disease advances the system becomes weakened generally, dyspepsy taking the lead and dropsy closing the scene.

Genital excrescence. Treatment. Cauliflower excrescence.

The cause is seldom ascertainable. While the excrescence is small it has often been successfully attacked by local bleedings which empty the vessels, by astringent injections, plugging up the vagina, and tightly bracing it with bandages carried round the loins*.

Cause.

* Observations on the Diseases of Females, &c. By Ch. Mansfield Clarke. 8vo. 1821.

CLASS V.

GENETICA.

ORDER III.

CARPOTICA.

Diseases affecting the Impregnation.

Class V. Order III. Origin of generic term.

THE ordinal term CARPOTICA, is derived from καρπὸς, "fructus", whence κάρπωσις, "fruitio".

Genera of diseases accompanying impregnation.

In the Physiological Proem to the present Class, we have taken a brief survey of the laws and general process of generation so far as we are acquainted with them. Impregnation constitutes a part, and the most important part, of this wonderful economy; and, from the changes that the body undergoes during its action, it can never be surprising that it should often give rise to various diseases. These diseases may be arranged under four genera; including, those which occur during the progress of pregnancy: those which occur during the progress of labour; conceptions misplaced; and spurious attempts at conception; the whole of which may be thus expressed:

I.	PARACYESIS.	MORBID PREGNANCY.
II.	PARODYNIA.	MORBID LABOUR.
III.	ECCYESIS.	EXTRA-UTERINE FETATION.
IV.	PSEUDOCYESIS.	SPURIOUS PREGNANCY.

Class V. Order III. Carpotica. Diseases affecting the impregnation.

In the preceding Physiological Proem, we have shown that, in order for impregnation to take place, it is necessary the semen of the male should pass from the vagina to the one or other of the ovaries by means of the Fallopian tubes which lay hold of the uterus by their very fine and sensible fimbriæ, or fringed extremities, with a sort of spastic grasp during the high-wrought shock of the embrace, and thus alone open a path-way for the semen to travel in.

Physiological principles explanatory of impregnation.

Use of a pair of ovaries in increasing the productive power in quadrupeds.

The two ovaries are not merely intended to supply the place of each other, in the event of one being wanting or defective, but, like the testes in men, they seem to increase the extent of the productive power, and enable a female to bear a larger offspring than she would do, if she were possessed of one ovary alone. Mr. John Hunter has put this to the test by comparing the number of young produced by a perfect sow with those of a sow spayed of one ovary, both of the same farrow, and impregnated by a boar of the same farrow also. The spayed sow continued to breed for four years, during which period she had eight farrows producing a total of seventy-six young. The perfect sow continued to bread for six years; during the first four of which she also had eight farrows producing a total of eighty-seven young: and during the two ensuing years she had five more farrows producing a total of seventy-five young, in addition to those of the first four years*. So that, if we may judge from this single experiment, the use of two ovaries, in equal health and activity, enables an animal to breed both more numerously, and for a longer period of time, than the possession of one alone.

Illustrated from J. Hunter.

This case does not seem equally applicable to women.

Among women, however, the extent of fecundation does not seem to be much interfered with by the defect of a single ovarium, or its means of communication with the uterus, according to a paper of Dr. Granville read before the Royal Society, April 16, 1813, containing the case of a female whose uterus was found after death to have had but one set of the lateral appendages, and, consequently, a

* Animal Economy, p. 157.

Class V. Order III. Carpotica. Diseases affecting the impregnation.

connexion with but one ovarium, and who, nevertheless, had been the mother of eleven children, several of each sex, with twins on one occasion.

After impregnation the womb closed by a septum: and hence no possibility of superfetation.

After impregnation has taken place, the membranes produced in the uterus form a complete septum, and consequently, a bar to the ascent of any subsequent flow of semen, so as to prohibit the possibility of two or more successive impregnations co-existing in any part of the uterus during the period of a determined gravidity. Children, indeed, have been born within a few weeks, or even months, of each other, and hence a colour has been given to the hypothesis that they may be conceived at different periods of a common parturition, and such births have, in consequence, been distinguished by the name of SUPERFETATIONS; but we shall have occasion hereafter, when treating of a plurality of children, to show that it is far more probable that fetuses thus born in succession, however they may vary in size or maturity, are real twins, conceived at one and the same time, from the descent of a plurality of ovula into the uterus, instead of a single one, and that the difference of size or maturity depends upon some unknown cause in the dead or puny fetus, which has killed it or prevented its keeping pace with the other. If, however, a second connexion take place within a few hours of the first, and before the occluding membrane produced on impregnation be formed, a twin may be the result of this additional coition; but the fetuses will in such case be parallel in their progress to perfection. M. Bouillon has given a curious example of this in a negress who at the usual time of pregnancy was delivered of two male children full grown, and of like proportions, but the one a negro and the other a mulatto. The mother, after long resistance, confessed that she had had connexion *the same evening* with a white and with a negro*.

Superfetation.

Hence children born within a few months of each other real twins, conceived at the same time.

Difference of kind of birth accounted for.

Superfetation may occur in certain circumstances.

Women capable of breeding as soon as they menstruate: and hence sometimes

Women are in general capable of breeding as soon as they begin to menstruate, which is the ordinary proof that the organs of conception are fully developed and per-

* Bulletin de la Faculté, et de la Societé de Medicine, &c. No. III. 1821.

fected: and since this discharge, as we have remarked in the Proem just referred to, commences sometimes in very early life, and particularly in hot climates, where it has occurred in girls of not more than nine years of age, so we have instances of conception and pregnancy having commenced as early. Baron Haller* and Professor Schmidt†, concur in examples of pregnancy at nine years old: and the medical records confirm these singular histories by numerous instances of a like kind‡.

Class V. Order III. Carpotica. Diseases affecting the impregnation.

of breeding at nine years of age.

Illustrated.

Yet, though menstruation is the ordinary proof that the conceptive powers have acquired a sufficient finish and vigour for their proper function, menstruation itself is not absolutely necessary for impregnation. As there are circumstances that hurry on this secretion before its ordinary term of appearance, there are others that delay it, insomuch that some women pass through a long life without menstruating at all, while others only begin after reaching an adult age, and others again not till the period in which it usually ceases. Now, it may happen that a woman whose peculiar habit produces a peculiar retardation of menstruation, may marry before this secretion takes place for the first time; and, as we have just observed that she is able to breed as soon as ever she is able to menstruate, the former process may anticipate the latter, and postpone it till the term of pregnancy has been completed. "A young woman," says Sir Everard Home, "was married before she was seventeen, and, although she had never menstruated, became pregnant: four months after her delivery she became pregnant a second time, and four months after the second delivery she was a third time pregnant, but miscarried: after this she menstruated for the first time, and continued to do so for several periods, and again became pregnant."§

Menstruation not absolutely necessary for impregnation, and why.

Exemplified.

There is much difference of opinion as to the period of pregnancy in the human female; for while other animals seem to observe great punctuality upon this subject, we

Difference of opinion concerning the exact term of female pregnancy in the judgement

* Vide Blumenbach, Bibl. I. p. 558.
† Act. Helvet. IV. 162.
‡ Eph. Nat. Cur. Dec. III. Ann. II. Obs. 172.
§ Phil. Trans. 1817, p. 258.

Class V. Order III. Carpotica. Diseases affecting the impregnation.

meet with so many and such considerable varieties in women, that legislators, as well as physicians, have not agreed in assigning a common term. Hippocrates rules it that we should admit the possibility of a child being born at ten months, but not later, which is the common term assigned in the book of the Apocrypha entitled Wisdom of Solomon*; while Haller gives references to women who are said to have gone not only ten, but eleven, twelve, thirteen, and even fourteen months; most of which, however, are of a suspicious kind. Twelve months, nevertheless, is a term allowed by many physicians, as what may take place under peculiar weakness or delicacy of health†: and yet it is most probable that in all these the mother is mistaken as to the proper time of her conception, and imagines herself to have commenced pregnancy for some weeks or even months before it actually takes place. The state of menstruation affords no full proof; for as conception may occur without its appearance, so it may continue for many months or even during the whole term of pregnancy, though most commonly in a smaller quantity than usual. There is a singular case in the Histoire de l'Académie des Sciences, of a living child born after what is said to have been three years of pregnancy‡. Few reports of this kind are worth attending to, or entitled to any kind of explanation: but it has sometimes happened, and probably did so in this last case, that a woman conceits herself to be in a state of pregnancy, and has various symptoms that simulate it, for a twelvemonth or considerably more than a twelvemonth, and particularly towards the cessation of the catamenia, instances of which we shall have occasion to notice under the fourth genus of the present order, entitled PSEUDOCYESIS or spurious pregnancy: and if, after such a simulation continued for a year or two, the woman should fall

both of legislators and physicians.

May extend to twelve months according to some: and under what circumstances.

This view of the case probably a mistaken one.

Explained.

In what sense a child said to be born after three years of pregnancy.

* Chap. vii. 2.

† Büchner, Miscell. 1727, p. 170.—Enguin, Journ. de Med. Tom. LXI.—Brambilla, Abhandl. der Joseph. Acad. Brand. I. p. 102.—Telmont de St. Journ. de Med. Tom. XXVII.—Ploucquet, Von. den physischen Erfordernissen der Erbfähigkeit der Kinder, p. 69. Treb. 8vo. 1778.

‡ Hist. de l'Académie des Sciences, 1753, p. 206.

into a state of real pregnancy, she may persuade herself at the close of the process that she has been pregnant for the whole of this time.

By the Code Napoleon, the legitimacy of a child born three hundred days after a dissolution of marriage may be questioned. In our own country, the law is to this hour in an unsettled state; and much nicety of argument has frequently taken place; of which an example was afforded in the famous question of the Banbury peerage, upon a new raised distinction of access and generative access. There can be no doubt, however, that a considerable difference in duration may ensue from the state of the mother's health: for, as the fetus receives its nourishment from the mother, there is a probability that various deviations from health may retard the maturity of the fetus. And it is, probably, on this account that different legislators have assigned different periods of legitimacy; one of the shortest of which is that determined upon by the faculty of Leipsic, who have been complaisant enough to decide that a child born five months and eight days after the return of the husband, may be considered as legitimate; and that a fetus at five months is often a perfect and healthy child.

In the Code Napoleon 300 days.

Question of the Banbury peerage.

How different periods established by different legislators.

Child may be legitimate at five months, as determined by the faculty of Leipsic.

In the ordinary calculation of our own country, the allowed term does not essentially differ from that in the Code Napoleon, for it extends to nine calendar months or forty weeks; but as there is often much difficulty in determining the exact day between any two periods of menstruation in which semination has taken effect, it is usual to count the forty weeks from the middle of the interval before it ceases; or, in other words, to give a date of forty-two weeks from the last appearance of the menses: and at the expiration of this term, within a few days before or after, the labour may confidently be expected.

Ordinary calculation of time in Britain, nine calendar months or forty weeks.

In the progress of pregnancy the size and figure of the uterus, as well as its position, change considerably. In an adult and unimpregnated female, its length is about two inches and a half; its thickness one inch; its breadth at the fundus something less than its length; and at the

Figure and position of uterus during pregnancy at different periods.

Class V. Order III. Carpotica. Diseases affecting the impregnation.

cervix about two lines. Before the end of the third month it has a tendency to dip towards the pelvis, at which period it may be felt to ascend: during the seventh month it forms a line with the navel; in the eighth month it ascends still higher, reaching midway between this organ and the sternum; and in the ninth it almost touches the ensiform cartilage; at the close of which, as though overwhelmed by its own bulk, it begins again to descend, and shortly afterwards, from the irritation produced by the weight of the child, or, more probably, from the simple law of instinct, it becomes attacked with a series of spasmodic contractions extending to the surrounding organs, which constitute the pains of labour, gradually increase in strength, enlarge the mouth of the organ, and protrude the child into the world.

Closing with labour-pains.

Size and weight of a healthy child at this time.

The size of the child at this time varies considerably in different individuals; and seems indeed to exhibit some diversity in different countries. Dr. Hunter, from observations made on some thousands of new-born and perfect children in the British Lying-in Hospital, found that the weight of the smallest was about four pounds, and of the largest eleven pounds two ounces, ordinarily however varying from five to eight pounds: whence, as also from his own observations, Dr. Clarke has calculated the average weight at seven pounds five ounces and seven drachms for male children, and six pounds eleven ounces and six drachms for female*. Dr. Merriman, however, gives one instance in which the weight reached fourteen pounds; and Sir R. Croft another in which it reached fifteen pounds. On the continent, the standard weight seems to be considerably less, for M. Camus reckons it at not more than from five to seven pounds for France, and M. Roederer at from five pounds to six pounds and a half for Germany. And consistently with this diminished scale M. Camus tells us that out of fifteen hundred and forty-one children examined by himself, the greatest weight was not more than nine pounds, of which there

Has reached fourteen and fifteen pounds.

Standard weight apparently less on the Continent than in Great Britain.

* Phil. Trans. Vol. LXXIV.

Class V. Order III. Carpotica. Diseases affecting the impregnation.

were only sixteen instances: while at the Hospice de la Maternité at Paris, out of twenty thousand perfect births, a few only have reached ten pounds and a half, and none exceeded it*. At this time the standard length of the skeleton, according to M. Bedard, is eighteen inches, that of the spine seven inches and a quarter; the former, at three months from conception, being only six inches, and the latter two inches and two-thirds.

At what age of premature labour it may live.

If the fetus be born before the completion of the seventh month, it has but a slender chance of surviving; but there are a few well-authenticated instances of its living when born earlier. Thus Dr. Norman gives a very satisfactory narration of a child born in 1815 at Paisley, between the fourth and fifth month†; and Fortunis Liceti, who died at the age of twenty-four, is affirmed by Capuron to have been born at as early a period of pregnancy.

In natural pregnancy and strong health little suffering: and in natural labour little danger. But danger may arise from numerous circumstances.

In natural pregnancy, a strong hearty woman suffers little considering the great change which many of the most important organs of both the thorax and abdomen are sustaining; and in natural labour, though the returning pains are violent for several hours, there is little or no danger. But numerous unforeseen circumstances may arise from the constitution of the mother, the shape of the pelvis, the figure or position of the child, to produce difficulty, danger, and even death.

Limited scope intended by the author in describing the diseases hence ensuing.

In describing the diseases which appertain to the whole of this period, it is not the author's design to do more than to take a general pathological survey, so as to communicate that kind of knowledge upon the subject which every practitioner of the healing art should be acquainted with, even though he may not engage in the obstetric branch of his profession. The minuter and more practical parts, and especially those which relate to the application of instruments and the mechanical means of assistance, must be sought for in books and lectures expressly appropriated to this purpose, with which it is not his intention to interfere.

* Medical Jurisprudence by J. Paris, M.D. and J. S. M. Fonblanque, Esq., Barrister at Law, Vol. II. p. 101.

† Edin. Med. and Surg. Journ. Vol. XI.

GENUS I.

PARACYESIS.

Morbid Pregnancy.

THE PROGRESS OF PREGNANCY DISTURBED OR ENDANGERED BY THE SUPERVENTION OF GENERAL OR LOCAL DISORDER.

GEN. I. Origin of generic term.

The generic term is derived from παρὰ, "malè", and κύησις, "graviditas". The genus will conveniently embrace the three following species, according as the general system, or organs distinct from those immediately concerned, are disturbed; as the sexual organs themselves are disturbed; or as the fruit itself is disturbed and extruded prematurely:

1.	PARACYESIS IRRITATIVA.	CONSTITUTIONAL DERANGEMENT OF PREGNANCY.
2.	——— UTERINA.	LOCAL DERANGEMENT OF PREGNANCY.
3.	——— ABORTUS.	MISCARRIAGE. ABORTION.

SPECIES I.

PARACYESIS IRRITATIVA.

Constitutional Derangement of Pregnancy.

PREGNANCY EXCITING DISTRESS OR DISTURBANCE IN OTHER ORGANS OR FUNCTIONS THAN THOSE PRIMARILY CONCERNED.

GEN. I. SPEC. I. Various organs affected directly or indirectly by the new state of the womb:

THE new condition of the womb operates upon the whole or different parts of the system in various ways. We have frequently had occasion to observe that there is no organ whatever which exercises a more extensive control over the entire fabric than the uterus, with the exception of the stomach; and hence many parts are affected by sympathy during its new action, and particularly the brain and the whole of the nervous function. But its change of shape, bulk, and position, operates mechanically on other organs and frequently produces serious mischief by pressure or irritation; these organs are chiefly the stomach itself, the lungs, the intestinal canal, and the veins of the legs. And hence the evils resulting from these causes, may be contemplated under the following varieties:

whence the following varieties:

α Systatica.	Accompanied with faintings, palpitations, convulsions, or other direct affections of the nervous system.
β Dyspeptica.	Accompanied with indigestion, sickness, and head-ache.
γ Dyspnoica.	Accompanied with difficult breathing and occasionally a cough.
δ Alvina.	Accompanied with derangement of the alvine canal, as costiveness, diarrhœa, or hemorrhoids.

GEN. I. SPEC. I. Paracyesis irritativa. Constitutional derangement of pregnancy.

ε Varicosa — Accompanied with venous dilatation of the lower extremities.

That the nervous system should often suffer severely, and in various ways during pregnancy, will not appear singular to those who have attended to the remarks we have already made concerning the close chain of sympathy that prevails between the brain and the sexual organs, from the time of the first developement of the latter to their becoming torpid and superannuated on the cessation of the catamenia. But in delicate habits, in which these nervous affections chiefly occur, there is another cause, which is even more powerful than the preceding; and that is the demand of an additional supply of sensorial power in support of the new process, and, consequently, an additional excitement and exhaustion of the sensorium, persevered in without intermission, and increasing from day to day. This excitement and exhaustion necessarily produce weakness; and of course an irregularity in the flow, and particularly in the alternating pauses, of the sensorial current; hereby predisposing alike to palpitation of the heart, clonic spasms, and convulsions, according to the law of physiology laid down under the genus CLONUS*, to which the reader may return at his leisure. Fainting, as has also been previously shown under the genus SYNCOPE†, is dependent upon the same deficiency of action, rendered more complete, or more protracted in duration.

α P. irritativa systatica. Nervous ailments of pregnancy.

Nervous system sympathizes at all times with the sexual organs; but particularly in delicate habits and on what account: predisposing to palpitation, syncope, and convulsions.

Palpitation often an effect.

PALPITATION, in the case before us, is rarely attended with danger, but is often a most distressing symptom. It returns irregularly in the course of the day or night, but particularly after a meal, and very frequently on first lying down in bed. In the capricious state of the nervous system at this time, its return after meals does not seem to be so much dependent upon the nature of the food as upon the state of the stomach at the moment: it has recurred after a light and plain dinner, and been quiet after a more stimulant dinner; and then for a few days has been most severe after the latter, and least so after the former; for a short

* Vol. iv. p. 428. † Id. p. 536.

time the digestion has gone on tranquilly under both, and then again excited palpitation, and perhaps in an equal degree under both: nor has a total abstinence from solid animal food afforded any relief. The pulsatory action is sometimes confined to the heart, sometimes alternates with the cœliac or some other arterial trunk in the abdomen, and sometimes with the temporal arteries. Not long ago the author was occasionally consulted by a lady then in her sixth month, who had been most grievously afflicted with this affection from the time of her beginning to breed, and who then continued subject to it till her confinement. None of the antispasmodics afforded much, if any, relief; camphor, in large doses, was found the best palliative; the narcotics were all tried in vain; opium maddened the head, and threw out a most distressing lichenous rash. The paroxysms usually continued from two to six or eight hours. Other irritations produced it, as well as those of the stomach, and especially any sudden emotion of the mind.

Gen. I. Spec. I. a P. irritativa systatica. Nervous ailments of pregnancy. Description of its course, which is frequently irregular. Pulsatory action sometimes confined to the heart: sometimes alternates with the larger arteries. Illustrated.

Syncope or fainting occurs during any period of pregnancy, but chiefly in the stage of the first three months, and especially about the time of quickening. After this period the general frame acquires a habit of accommodation to the change that has taken place, and is less easily affected. It is ordinarily produced by more than usual exertion, exposure to heat, or any sudden excitement of the mind. It is sometimes of short duration, and the patient does not lose her recollection; but in other instances it continues for an hour or upwards. A recumbent position, pungent volatiles, sprinkling the face with cold water, and a free exposure to air with a moderate use of cordials, offer the speediest means of recovery. The extremities, however, should be kept warm, and the friction of a warm hand be applied to the feet.

Syncope or fainting often an effect. Course and description. Exciting causes. Remedial treatment.

One of the worst ailments that ever accompanies the process of gestation is that of convulsions. They may occur at any period of this process, and their exciting causes are not always manifest. The predisposing causes are general weakness or irritability of the nervous system,

Convulsions often an effect. Causes.

GEN. I. SPEC. I. α P. irritativa systatica.

Nervous ailments of pregnancy. Treatment.

a constitutional tendency to epilepsy, or any other clonic spasm, and entonic plethora. In all these cases there is a double danger; for we have to dread apoplexy from a rupture of blood-vessels in the head; and abortion or premature labour from an extension of the spasmodic action to the uterus. No time, therefore, is to be lost, and the remedial process must be as active as it is instant.

Danger at all times double: that of apoplexy: and that of abortion.

Medical treatment.

Bleeding in all cases entonic or atonic, and why; but the quantity of blood abstracted to vary according to circumstances.

Bleeding must be had recourse to immediately, as well in the atonic as in the entonic form of the disease. In the first, indeed, it is of itself an evil, for it will add to the general weakness; but as there is already, or, by a repetition of the fit, will unquestionably be, a considerable determination to the head, and more especially as the vessels in an atonic and relaxed frame yield easily as well to anastomosis as to rupture, it will be a far greater evil to omit it. The quantity of blood, however, that it may be adviseable to abstract, must be determined by the concomitant symptoms so far as they relate to the head. Generally speaking, in weakly habits, the head is only affected secondarily, or by sympathy with the irritation of the uterus, where convulsions make their appearance; and hence bleeding, in such cases, is to be employed rather as a prophylactic than as an antidote: and it may be sufficient to confine ourselves to the operation of cupping; at the same time opening the bowels by an adequate repetition of some laxative. After this opium must be chiefly trusted to, if the spasms still continue: and, on their subsidence, or in their interval, the metallic tonics should be introduced with the warmer bitters.

In weakly habits sometimes cupping alone.

Opium afterwards.

In strong habits bleeding should be pursued to fainting:

and sometimes repeated.

Where, however, the constitution is robust, and the convulsions have been preceded, as is often the fact in this case, by a tensive or even heavy pain in the head, vertigo, illusory corruscations before the eyes, or illusory sounds in the ears, the encephalon is itself the immediate seat of the disease, and the bleeding even in the first instance should be followed up to fainting, or at least till twenty ounces are drawn away, which it will frequently be necessary to repeat within twenty-four hours afterwards; and, if the practitioner be a skilful operator, it will be better to ab-

stract the blood from the jugular vein, as the good effect will be sooner felt. The hair should be shaved from the head, and ice-water or other frigid lotions be applied, and very frequently renewed. The bowels must at the same time be purged vigorously, and dilute farinaceous food constitute the whole of the diet. Opium should be abstained from at least till the general strength is reduced to an atonic state, when if the paroxysms should still return, it may be had recourse to in conjunction with antimonial powder or some other relaxant.

Gen. I. Spec. I. α P. irritativa systatica. Nervous ailments of pregnancy. Treatment. Jugular vein the best. Frigid applications. Aperients. Opium to be abstained from, at least till the system is reduced.

When, in despite of all this treatment, apoplexy has taken place, and is followed by a palsy of a particular organ, or of an entire side, it will often be found that the paralytic affection will continue through the whole course of the pregnancy, and entirely disappear afterwards.

If palsy follow, often continues through life.

SICKNESS, HEART-BURN, and other symptoms of INDIGESTION are still more common affections than those of the nervous system we have first noticed. These are chiefly troublesome in the commencement of pregnancy, and evidently prove that they proceed not from any mechanical pressure, either direct or indirect, against the coats of the stomach, but from mere sympathy with the new and irritable state of the uterus: for, as the novelty of this state wears away and the stomach becomes accustomed to it, the sickness and other dyspeptic symptoms subside gradually, and are rarely troublesome even when in the latter months of pregnancy the uterus has swollen to its utmost extent, from a length of three inches to that of twelve, and has risen nearly as high as the sternum.

β P. irritativa dyspeptica. Dyspeptic ailments of pregnancy. Their cause, progress, and the cessation of many of them.

The head-ache which occurs as a dyspeptic symptom, is of a very different kind from that we have just noticed, and is rarely relieved by very copious bleedings; though the whole of these symptoms are occasionally mitigated by a loss of eight or nine ounces of blood from the arm, or the application of leeches to the epigastric region as recommended by Dr. Sims, and M. Lorentz. Cloths wetted with laudanum and applied to the pit of the stomach have also been found serviceable in various cases: but the most efficacious means consist in the employment of gentle laxa-

Moderate venesection or leeches to the epigastrium. Gentle laxatives and

GEN. I. SPEC. I. β P. irritativa dyspeptica.

tives, and a very light diet, to which may be added the use of the aërated alkaline waters or saline draughts, in a state of effervescence.

Dyspeptic ailments of pregnancy. Treatment.

The fluid discharged from the stomach on these occasions is usually limpid, thin, and watery; but where there is much straining a little bile is thrown up at the same time. It is rarely that this kind of vomiting produces any serious evil; though when it has become very obstinate, as well as very severe, it has sometimes endangered a miscarriage. The other symptoms of dyspepsy usually cease with this, and are rather disquieting than sources of any degree of alarm They may often be palliated by some of the means already recommended under LIMOSIS, CARDIALGIA*, and DYSPEPSIA†.

cooling regimen.

Vomiting seldom produces evil, though sometimes endangers miscarriage.

γ P. irritativa dyspnoica. Dyspnetic ailments of pregnancy. Symptoms described.

The chief symptoms of DYSPNŒA that become troublesome during pregnancy are occasional fits of spasmodic anhelation. These are mostly common to those whose respiratory organs are naturally weak, or who are predisposed to hysteria. The paroxysms are of short duration and usually yield with ease to the warmer sedatives and antispasmodics. A dry and troublesome cough, however, is sometimes combined with this state of the chest, that, if violent, endangers abortion, and has occasionally produced it. Bleeding will here also be adviseable as the first step in the curative process. Eight ounces of blood will suffice, but the depletion must be repeated at distinct intervals if the cough should continue unabated. Gentle laxatives should succeed to the bleeding and be persevered in as the bowels may require. And to these may be added the mucilaginous demulcents‡ already recommended in idiopathic cough, united with such doses of hyoscyamus, conium, or opium, as are found best to agree with the state of the constitution. There is little danger, nevertheless, of this cough terminating in consumption however troublesome and obstinate it may be in itself, for it is rarely that two superadded actions go forward in the constitution at

Mode of treatment.

If there be cough it rarely terminates in consumption, and why.

* Vol. I. p. 137. † Id. p. 171.
‡ Id. p. 549.

Gen. I. Spec. I. γ P. irritativa dyspnoica.

the same time: and hence, as we already have had occasion to observe, whenever pregnancy takes place in a patient labouring under phthisis, the progress of the latter disease is arrested till the new process has run its course*.

Dyspnetic ailments of pregnancy. Treatment.

Derangements of the alvine canal, under some modification or other, accompany most cases of pregnancy, are often very distressing, and by their irritation sometimes hasten on labour-pains before their time.

δ P. irritativa alvina. Alvine ailments of pregnancy.

These affections are of two very opposite kinds. In some instances the intestines participate in the irritability of the uterus, the peristaltic action is morbidly increased, and there is a troublesome diarrhœa. In others the larger intestines appear to be rendered torpid partly by the share of sensorial power which is taken from them in support of the new action, and partly by the pressure of the expanding uterus on their coats. In both cases piles are a frequent attendant, but particularly in the last.

Diarrhœa. Costiveness.

Treatment of diarrhœa.

The diarrhœa varies in different individuals from a looser flow of proper feces to a muculent secretion, or a dejection of dark-coloured offensive stools, accompanied with a foul tongue and loss of appetite. The first modification requires no remedy, and may be safely left to itself. The second and third import a morbid action of the excretories of the intestines, and are best relieved by small and repeated doses of rhubarb with two grains of ipecacuan to each†, and afterwards by infusions of cascarilla, orange-peel, or any other light aromatic bitter.

Treatment of costiveness.

The costiveness must be carefully guarded against by such aperients as are found upon trial to agree best with the bowels. Where acidity in the stomach is suspected, magnesia may be employed, and will often prove sufficient: but where this does not exist, the senna electuary, Epsom salts, or castor oil, will be found to answer much better. The piles will usually disappear as soon as the bowels are restored to a current state: and, if not, they should be treated according to the plan already laid down under PROCTICA MARISCA‡.

* Vol. III. Cl. III. Ord. IV. Gen. III. Spec. V.

† Burns, Principles of Midwifery, p. 154.

‡ Vol. I. p. 367.

Gen. I. Spec. I. ε P. irritativa varicosa. Varicose ailments of pregnancy.

How to be palliated.

VARICOSE DILATATIONS of the veins of the lower extremities are a frequent, though not often a very troublesome accompaniment of pregnancy. They are chiefly found in women whose occupation obliges them to be much on their feet. Where the affected veins are first perceived to enlarge, the varicose knots may generally be prevented by exchanging the accustomed erect position for a recumbent one, and using the legs but little. Where the varices are actually formed, the legs may be supported with a bandage drawn only with such moderate pressure as to afford sustentation; for if carried beyond this we shall only endanger a worse congestion in some other part not equally guarded against. For the rest the reader may turn to EXANGIA VARIX, in a preceding part of this work *.

May be complicated with abdominal dropsy.

Pregnancy may also take place during the existence of abdominal dropsy, or even give rise to it, and the general pressure and enlargement may be so considerable as to threaten suffocation. The ascites will be hereby considerably complicated, but its mode of treatment will be best considered under the latter disease †.

SPECIES II.

PARACYESIS UTERINA.

Local Derangement of Pregnancy.

PREGNANCY DISTURBED OR ENDANGERED BY SOME DISEASED AFFECTION OF THE UTERUS.

Gen. I. Spec. II. General changes produced in the uterus during gestation,

IN the progress of this work, we have seen that on the commencement and through the course of impregnation the periodical secretion of the uterus is suspended; that the

* Vol. III. Cl. III. Ord. IV. Gen. XI. Spec. II.

† Infrà, Cl. VI. Ord. II. Gen. I. Spec. V.

organ gradually enlarges from its ordinary size till, in the ninth month, it measures ten or twelve inches from top to bottom, and that, in the course of this enlargement, it changes its position according to a law that is never departed from in a state of health.

Gen. I. Spec. II. Paracyesis uterina. Local derangement of pregnancy.

In a state of morbid action, however, or from some accidental injury, the uterus does not always maintain its proper position, nor abstain from throwing forth not only its ordinary and natural secretions, but other fluids of a morbid character; and hence becomes subject to several varieties of affection of which it may be sufficient to notice the following:

and occasional ailments to which they lead.

α Retroversa.	Retroversion of the uterus.
β Leucorrhoica.	The uterus secreting, or exciting in the vagina a secretion of, leucorrhœa, so as to produce debility.
γ Catamenica.	The catamenia continuing to recur.
δ Hæmorrhagica.	Accompanied with hemorrhage.

α P. uterina retroversa. Retroversion of the uterus.

A RETROVERSION OF THE UTERUS may be produced in various ways, though it is seldom found except in pregnancy, and between the third and fourth month of this state. This organ, notwithstanding its appendages of broad and round ligaments, is still left pendulous in the hypogastrium: and hence, if the fundus or broad and upper part happen, by a scirrhous induration, or pregnancy, or any other means, to acquire a certain bulk and weight, and if at the same time the cervix, or lower and narrow part, be pushed on one side by any accidental force, as that of the bladder when distended, the broad and upper part will tumble downward, while the narrower part ascends and takes its place. It is this which constitutes a retroverted uterus; but as it occasionally occurs under other states than that of pregnancy we have treated of it already, under the genus ÆDOPTOSIS UTERI, where we have stated the mode of treatment to be adopted in the case before us.

Described.

β P. uterina leucorrhoica. Leucorrhœa.

LEUCORRHŒA is a result of the increased action excited in every part of the uterus, or of the upper part of

GEN. I SPEC. II. β P. uterina leucorrhoica. Leucorrhœa.

the vagina which is inflamed by continuous sympathy. We have already observed that the mucous discharge denominated leucorrhœa, or whites, appears to be secreted from the lower part of the uterus, and the upper part of the latter organ*: and hence any excitement operating on the fundus of the womb may be easily conceived under a particular condition of the cervix of the uterus and the vagina, or of the system generally, capable of producing this secretion in considerable abundance.

Description.

When treating of leucorrhœa as an idiopathic affection we remarked that where the discharge is excessive it produces considerable debility of the system generally, and of the sexual and lumbar region more particularly; and that when it becomes chronic, it often degenerates into an acrimonious condition and occasions great disquiet by excoriating the cuticle to a considerable extent.

Both these evils are consequent upon its occurrence in pregnancy, and the first has, occasionally, threatened abortion. They are to be relieved by the remedial process already pointed out under the genus LEUCORRHŒA in the first order of the present class†.

Recurrence of menstruation a frequent evil.

A continuance of the CATAMENIAL DISCHARGE at the regular periods, is also, in many cases of delicate habits, a source of great weakness and discomfort, and sometimes endangers miscarriage or premature labour: in all which instances it ought to be checked by a recumbent position, and particularly a little before the time in which it may be expected, and by the other means already enumerated under PARAMENIA SUPERFLUA in the present class‡.

In vigorous habits continues sometimes without mischief.

It has sometimes continued, however, in strong and vigorous habits through the whole period of pregnancy without any serious mischief§; though, even here, it has usually been found to produce general debility, and many troublesome dyspeptic symptoms.

Some have never menstruated but

Hemman‖ and several other writers give cases of wo-

* Suprà, p. 66. † Suprà, p. 70.

‡ Suprà, p. 60. § Hagedorn, Cent. II. Obs. 94.

‖ Medicinisch-Chirurgische Aufsätze. Berl. 1778.—Hopfergürtner, über menschliche Entwicklungen. p. 71. Sturg. 1798.

men who have never menstruated except when in a state of pregnancy: such is the degree of irritation which the secretories of the uterus, in some instances, demand, in order to be roused into a due performance of their function. So, some persons can only see on a full exposure to a meridian light*, and others can only hear when the tympanum is irritated by the noise of a drum or of a carriage, sufficient to deafen all the world around them†.

Gen. I. Spec. II. α P. uterina leucorrhoica. Leucorrhœa. Treatment.

in pregnancy.

Explained.

Hemorrhage from the uterus is sometimes connected with this irregular return of the periodical discharge, as we have already observed it is not unfrequently in an unimpregnated state of the organ. In both cases this is usually a consequence of great general debility, and it is hence the more alarming in any period of parturition, as risking the loss of the uterine fruit. In the delicacy of habit we are now contemplating, bleeding would only add to the debility or predisponent cause: and we must content ourselves with the plan already recommended under atonic hemorrhage of the uterus in a prior class and volume‡. Where the discharge has been induced by external violence, or a sudden emotion of the mind, venesection will be the best remedy we can have recourse to, and afterwards thirty or five and thirty drops of laudanum in a saline draught with two or three grains of ipecacuan.

Uterine hemorrhage an occasional effect, often a consequence of great debility.

SPECIES III.

PARACYESIS ABORTUS.

Miscarriage. Abortion.

PREMATURE EXCLUSION OF A DEAD FETUS FROM THE UTERUS.

We have stated in the introductory remarks to the present order that the usual term of pregnancy is forty weeks, or

Gen. I. Spec. III.

* Vol. IV. Paropsis noctifuga, p. 204.

† Vol. IV. Paracusis perversa. p. 250.

‡ Vol. III. Class III. Ord. IV. Gen. II. Spec. II.

GEN. I. SPEC. III. Paracyesis Abortus. Miscarriage. Abortion.

nine calendar months. Within this period, however, the fetus may be morbidly expelled at any time. If the exclusion take place within six weeks after conception it is usually called MISCARRIAGE; if between six weeks and six months, ABORTION; if during any part of the last three months before the completion of the natural term, PREMATURE LABOUR. Among some writers, however, abortion and miscarriage are used synonymously, and both are made to express an exclusion of the fetus at any time before the commencement of the seventh month. At seven months the fetus will often live. It has been born alive, in a few rare instances, at four months*; and has as rarely continued alive when born between five and six months†.

Miscarriage, how distinguished from abortion, and premature labour.

Fetus may live at seven months.

Has been born alive at four: and continued alive between five and six months.

The process of gestation may be checked, however, from its earliest period: for many of the causes of abortion, which can operate afterwards, may operate throughout the entire term, and hence a miscarriage occurs not unfrequently within three weeks after impregnation, or before the ovum has descended into the uterus. In this case the pains very much resemble those of difficult menstruation; and with a considerable discharge of clotted or coagulated blood the tunica decidua passes away alone, having also some resemblance to that imperfect form of it, which we have already noticed as being produced in some cases of difficult menstruation, but exhibiting a more completely membranous structure. And here the ovulum escapes unperceived at some subsequent period, and is probably decomposed and incapable of being traced.

Miscarriage may occur at any period. Sometimes at three weeks.

Symptoms at that period.

In later periods of pregnancy, abortion consists of two parts or stages; the separation of the ovum from the fundus of the womb, and its expulsion from the mouth. Sometimes these take place very nearly simultaneously, but sometimes several days or even weeks intervene; so that the process of abortion may considerably vary in its duration, and become exceedingly tedious. In several cases I have known the ovum remain undischarged, for

Abortion in subsequent periods consists of two stages, separation and exclusion.

These may be simultaneous or remote.

* A. Reyes, Campus Elys. Quest. 90. p. 1164.

† Brouzet, sur l'Education Médicinale des Enfans. 1. p. 37.

upwards of six weeks, and, in one case, for three months after its separation, and consequently after the death of the fetus, comparing its size and appearance with the ascertained term of gestation.

GEN. I. SPEC. III. Paracyesis Abortus. Miscarriage. Abortion.

Through the whole of this period there is an occasional discharge from the vagina, and often temporary disquietudes, and even contractile pains in the uterus. But both are of a very different kind from those which occur antecedently to the separation of the ovum. The first pains are usually sharp and expulsory, with a free discharge of clotting arterial blood; sometimes, indeed, in an alarming, though rarely a dangerous profusion; the last are dull and heavy, and the discharge is smaller in quantity, dark and fetid. We may also judge of the detachment of the ovum, and consequently the death of the fetus, by the cessation of those sympathetic symptoms which have hitherto connected the stomach and the mammæ with the action of the uterus; as the morning sickness, and the increasing plumpness of the breasts, which, not unfrequently, are so stimulated as to secrete already a small quantity of milk. On the separation of the ovum from the fundus of the uterus all these disappear; the stomach may be dyspeptic, but without the usual sickness, and the breasts become more than ordinarily flaccid.

When remote a discharge from the vagina during the interval: and occasional disquietude and pains: but different from those that precede separation.

Other distinctive symptoms.

The ovum, when at length discharged, comes away very differently in different cases. Sometimes the whole ovum is expelled at once; but more generally it is discharged in detached parts, the fetus first escaping with the liquor amnii, or descending with its own proportion of the placenta, the maternal proportion following some hours, or even days, afterwards. And, where there are twins, one of the fetuses, naked or surrounded with its membranes, is usually expelled alone, and the other not till an interval of several hours, or even a day or two; the discharge of blood ceasing, and the patient appearing to be in a state of recovery: so that it is difficult to determine whether or not there are twins in cases of early abortion.

Descent of the ovum:

in case of twins.

The causes of abortion are very numerous; and some of them are rather to be conjectured than fully ascertained.

Causes of abortion of various kinds.

Gen. I. Spec. III. Paracyesis Abortus. Miscarriage. Abortion.

They may depend upon the ovum itself, upon the uterus itself, or upon the uterus as affected by the nature of the maternal constitution, or accidental lesions.

Causes dependent upon the ovum.

"The imperfections observable in ova," remarks Dr. Denman, "are of different kinds, and found occasionally in every part; and there is usually a consent between the fetus and the shell of the ovum, as the placental part and membranes may be called, but not always. For examples have occurred in which the fetus has died before the termination of the third month, yet the shell, being healthy, has increased to a certain size, has remained till the expiration of the ninth month, and then been expelled, according to the genius and constitution of the uterus, though frequently it has been found to have undergone great changes, as, for instance, in many cases of hydatids."*

Causes dependent upon the nature of the uterus.

"It is remarkable," says the same author, "that women who are in the habit of miscarrying, go on in a very promising way to a certain time, and then miscarry, not once, but for a number of times, in spite of all the methods that can be contrived, and all the methods that can be given: so that, besides the force of habit, there is sometimes reason to suspect that the uterus is incapable of distending beyond such size, before it assumes its disposition to act, and that it cannot be quieted till it has excluded the ovum. What I am about to say, will not, I hope, be construed as giving a licence to irregularity of conduct, which may often be justly assigned as the immediate cause of abortion, or lead to the negligent use of those means that are likely to prevent it. But from the examination of many ova after their expulsion, it has appeared that their longer retention could not have produced any advantage, the fetus being decayed, or having ceased to grow long before it was expelled. Or the ovum has been in such a state as to become wholly unfit for the purpose it was assigned to answer: so that if we could believe there was a distinct intelligence existing in every part of the body, we should say it was concluded in

* Practice of Midwifery, Edit. 5, p. 506. 8vo.

council that this ovum can never come to perfection and shall be expelled."*

Gen. I. Spec. III. Paracyesis. Abortus. Miscarriage. Abortion.

The causes of abortion of a constitutional or accidental kind are more obvious. They may be internal, and depend upon a relaxed or debilitated state of the system generally, and consequently of the uterus as a part of it; or external, and depend on adventitious circumstances. Violent pressure, as that of tight stays, by preventing the uterus from duly enlarging, is an obvious cause, as is also that of a sudden shock by a fall, or a blow on the abdomen: violent exertion of every kind is a cause not less obvious, as that of immoderate exercise in dancing, riding, or even walking; lifting heavy weights; great straining to evacuate the feces, or too frequent evacuations from a powerful purgative. Violent excitement of the passions, as terror, anxiety, sorrow, or joy. Violent excitement of the external senses by objects of disgust—whether of sight, sound, taste, or even smell; or whatever else tends to disturb or check the circulation suddenly, and hereby to produce fainting, will often prove a cause of abortion. And when once this affection has been produced, the organs with difficulty recover their elasticity, and it is extremely apt to recur upon the slightest causes. Plater gives us an account of fourteen miscarriages in succession †; Werlhoff, of five within two years ‡; and Werloschnig, of not less than eight in a single year §. Wolfius relates the history of a woman, who, in the whole course of her life, suffered twenty-two distinct abortions ‖: and Schultz, that of another, who, in spite of every remedy, miscarried twenty-three times, and uniformly in the third month, probably from an indisposition in the uterus to become distended further, as suggested in similar cases by Dr. Denman in the passage just quoted from him.

Causes constitutional or incidental.

Miscarriage apt to recur. Has recurred upwards of twenty times.

Another, and a very frequent cause, is plethora, and this, whether it be from entony or atony. "The uterus",

Cause from plethora whether entonic or atonic.

* Denman, ubi suprà, p. 508. † Observationes, Lib. II. p. 467.
‡ Opp. III. p. 718. § De Curationibus Verno-autumn. p. 496.
‖ Lection. Memorab. p. 418.

Gen. I. Spec. III. Paracyesis Abortus. Miscarriage. Abortion.

observes Mr. Burns, "being a large vascular organ, is obedient to the laws of vascular action, whilst the ovum is more influenced by those regulating new formed parts; with this difference, however, that new formed parts or tumours are united firmly to the part from which they grow by all kinds of vessels, and generally by fibrous or cellular substance, whilst the ovum is connected to the uterus only by very tender and fragile arteries and veins. If, therefore, more blood be sent to the maternal part of the ovum than it can easily receive, and circulate, and act under, a rupture of the vessels will take place, and an extravasation and consequent separation be produced: or even where no rupture is occasioned, the action of the ovum may be so oppressed and disordered as to unfit it for continuing the process of gestation."*

How entonic plethora acts.

How atonic plethora acts.

Now in atonic plethora, or that commonly existing in high and fashionable life, among those who use little exercise, live luxuriously, and sleep in soft warm beds, although the action that accompanies the pressure is feeble compared with what occurs in the opposite state, the vessels themselves are feeble also, and their mouths and tunics are exceedingly apt to give way to even a slight impetus: and hence plethora becomes a frequent cause of abortion in women of a delicate habit and unrestrained indulgence.

Mode of action most obvious in entonic plethora.

Among the robust and the vigorous, however, its mode of operation is still more obvious and direct. An increased flow of blood is here forced urgently on the uterus, which participates irresistibly in the vehemence of the action; so that if the vessels do not suddenly give way, and hemorrhage instantly occur, the patient feels a tensive weight in the region of the uterus, and shooting pains about the pelvis. "This cause", observes M. Burns, "is especially apt to operate in those who are newly married, and who are of a salacious disposition, as the action of the uterus is thus much increased, and the existence of plethora rendered doubly dangerous. In these cases, whenever the men-

* Principles of Midwifery, 3d Edit. 8vo. p. 191.

ses have become obstructed, all causes tending to increase the circulation must be avoided, and often a temporary separation from the husband is indispensable."*

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The general treatment of abortion consists of two intentions, that of preventing it when it threatens; and that of safely leading the patient through it when there is little doubt that it has taken place.

Treatment of abortion embraces two intentions: that of prevention and of subsequent management.

The chief symptoms menacing abortion are transitory pains in the back or hypogastric region, or a sudden hemorrhage from the vagina. In all these cases the first step to be taken is a recumbent position, and when the patient is once placed in this state we should deliberately examine into the nature of the cause. If there be symptoms of plethora, or oppression, if an accident, or a sudden emotion of the mind, or severe exercise, as of dancing, riding, or even walking, have produced them by disturbing the equilibrium of the circulating system, blood should be immediately taken from the arm, and all irritation removed from the bowels by a gentle laxative or injection. In plethora, indeed, we may go beyond this, and empty the bowels more freely; yet even here our object should be to reduce without weakening. In every instance, except where plethora prevails, after abstracting blood, the next best remedy is a full dose of opium consisting of thirty or forty drops of laudanum, or more if the symptoms be urgent, and repeated every three or four months till the object is obtained†. And where the system is so feeble or emaciated that bleedings is counter-indicated, we must content ourselves with giving sulphuric acid with small doses of digitalis, unless, indeed, there be much tendency to sinking at the stomach, and, in this case, we must limit our practice to the mineral acids and opium, and gently relieving the bowels.

Preventive process.

By this plan the pains originating from incidental causes are often checked, and the partial separation of the ovum that has commenced is put a stop to. But the remedial process is thus far merely begun: the patient, for some weeks, must be peculiarly attentive to her diet, which

Same process must be long continued even after its success.

* Burns, ut supra, p. 192. † Askow, Act. Soc. Med. Hafn. Tom. 1.

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should be light and sparing, and if exercise of any kind be allowed, it should be that of swinging, or of any easy carriage. Cold bathing, and especially cold sea-bathing, is of great importance; and where these cannot conveniently be had, a cold hip or shower bath may be employed in their stead; and if there should still be the slightest issue of blood from the vagina, injections of cold water, or of a solution of alum, or sulphate of zinc, should be thrown up the passage two or three times a-day: or an iciele or a snow-ball be employed as a pessary.

Cold applications locally with astringent injections.

Warm bedding to be exchanged for a hard mattrass.

A little wine allowed to the weakly. Sexual connexion to be abstained from.

If the habit be peculiarly vigorous and robust, stimulants and softness of bed-clothes must be carefully avoided, and the downy couch be exchanged for a hard mattrass. But if the constitution be delicate and emaciated, two or three glasses of wine may be allowed daily, and a course of angustura, columbo, or some other bitter tonic should be entered upon. In either case, however, it is absolutely necessary that sexual connexion should be abstained from for ten days or a fortnight.

Uninterrupted use of a recumbent posture recommended by some. The question examined.

Useful in some cases, but inapplicable to others: in which a tepid hip-bath is more likely to be useful. Illustrated.

It has of late been very much the custom to confine women of a very delicate frame, and especially after they have once miscarried, to a recumbent position from the first symptom of conception through the whole term of gestation. In a few cases this may be a right and advantageous practice, but in the present day it is employed far too indiscriminately. Among the causes of abortion we have just enumerated there are many it can never touch, as where the ovum itself is at fault, or there is a natural indisposition in the uterus to expand beyond a certain diameter. In this last case, if we could be sure of it, a tepid hip-bath employed every evening, about the time the abortion is expected, would be a far more likely means of preventing it: for we should act here as in all other affections where our object is to relax and take off tension, in which states we uniformly employ warmth and moisture; commonly, indeed, a bread and water poultice. And hence, in the instance before us, one of the best applications we could have recourse to would be a broad swathe of flannel moistened with warm water and applied round

the loins and lower belly every night on going to bed, surrounded externally with a dry swathe of folded linen. This should be worn through the whole night, and continued for a fortnight about the time we have reason to expect a periodical return of abortion from the cause now alluded to.

Gen. D. Sect. III. Paracyesis Abortus. Miscarriage. Abortion. Treatment.

I was lately requested to join in consultation with an obstetric physician upon the state of a young married lady, of a highly nervous and irritable frame united with great energy and activity both of mind and body, who had hitherto miscarried about the third month of gestation, by braving all risks, taking walks of many miles at a stretch, or riding on horse back for half the day at a time. She was now once more in the family way, and had just commenced the discipline of only quitting her bed for the sofa to which she was carried, and on which she was ordered to repose with her head quite flat and in a line with her body, and without moving her arms otherwise than to feed herself: and to continue in this motionless state for the ensuing eight months. Without entering into the immediate cause of her former miscarriages, I ventured to express my doubts whether so sudden and extreme a change would not rather hurry on than prevent abortion, by accumulating such a degree of sensorial power as should produce an insupportable dysphoria or restlessness, which would peculiarly vent itself on the organ of greatest irritation. But I recommended that all exertion of body and mind should be moderated, that the diet should be plain, the hours regular, that the position should be generally recumbent, and strictly so for a fortnight about the time in which abortion might be expected. It was over-ruled, however, to persevere in the plan already adopted from the moment, and every sedentary relief and amusement that could be devised was put in requisition to support the patient's spirits. She went on well for a week, but at the end of this period became irritable, fatigued, and dispirited; and miscarried at about six weeks from conception, instead of advancing to three months as she had hitherto done.

Further illustration from a case in which it appeared to hasten miscarriage.

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Even in the case of a delicate and relaxed frame, and of a mind that has no objection to confinement, it is well worth consideration whether the ordinary means of augmenting the general strength and elasticity by such tonics as are found best to agree with the system, and such exercises as may be taken without fatigue; particularly any of those kinds of motion which the Greeks denominated seora, as swinging or sailing, riding in a palanquin, or in a carriage with a sofa-bed or hammock,—which, as we observed on a former occasion*, instead of exhausting, tranquillize and prove sedative, retard the pulse, produce sleep, and calm the irregularities of every irritable organ,—may not be far more likely to carry the patient forward than a life of unchanging indolence, and undisturbed rest, which cannot fail to add to the general weakness, how much soever the posture it inculcates may favour the quiet of the uterus itself.

Other arguments worth considering.

Management of abortion where it occurs.

We have thus far supposed that there is a mere danger of abortion, and that the symptoms are capable of being suppressed. But if the pains, instead of being local and irregular, should have become regular and contractile before medical assistance is sought for, or should have extended round the body, and been accompanied with strong expulsory efforts, and particularly if, in conjunction with those, there should have been a considerable degree of hemorrhage, our preventive plan will be in vain, a separation has unquestionably taken place, and to check the descent of the detached ovum would be useless if not mischievous. Even though the pains should have ceased we can give no encouragement, for such a cessation only affords a stronger proof that the effect is concluded.

When the discharge small, it should be left to itself.

If the discharge continue but in small quantity, it is best to let it take its course; to confine the patient to a bed lightly covered with clothing, and give her five and twenty or thirty drops of laudanum. Bleeding is often had recourse to with a view of effecting a revulsion: it is

* Marasmus Phthisis, Vol. III. Cl. III. Ord. IV. Gen. III. Sp. V.

unalled for, however, and may do mischief by augmenting the weakness.

But the practitioner often arrives when the discharge is in great abundance and amounts to a flooding; and the patient is faint and sinking, and seems ready to expire.

Treatment in flooding.

To the inexperienced these symptoms are truly alarming, and, in a few instances, sudden death appears to have ensued from the exhaustion that accompanies them. But these are very uncommon cases, for it rarely happens that the patient does not recover in an hour or two from the deliquium: and even the syncope itself is one of the most effectual means of putting a check to the discharge by the sudden interruption it gives to all vascular action. Cold, both external and internal, is here of the utmost importance; the bed-curtains should be undrawn, the windows thrown open, and a sheet alone flung over the patient; while linen wrung out in cold water, or ice-water should be applied to the lower parts of the body and renewed as its temperature becomes warm: withholding the application, however, as soon as the hemorrhage ceases.

Symptoms alarming but not often fatal.

Syncope itself of use.

Cold external and internal.

Injections when to be desisted from, and why.

Injections should, in this case, be desisted from; for the formation of clots of blood around the bleeding vessels should be encouraged as much as possible, instead of being washed away. And for this reason it is now a common practice to plug the vagina as tight as possible with sponge or folds of linen, or, what is better, a silk handkerchief, smeared over with oil that they may be introduced the more easily, and afterwards to confine the plug with a T bandage. This plan has been long recommended by Dr. Hamilton, and has been extensively followed with considerable success. Here, also, Dr. Hamilton prescribes large doses of opium as an auxiliary, beginning with five grains, and continuing it in doses of three grains every three hours, till the hemorrhage has entirely ceased. Opium, however, is given with most advantage where the flooding takes place after the expulsion of the ovum; for if this have not occurred its advantage may be questioned, since it has a direct tendency to interrupt that muscular contraction without which the ovum cannot be expelled.

The vagina to be plugged.

Opium in large doses:

when given most advantageously:

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And it should be farther observed that where opium is had recourse to in such large doses as are above proposed, it must not be dropped suddenly, for the most mischievous consequences would ensue; but must be continued in doses gradually diminishing till it can at length be omitted with prudence.

only to be dropped by degrees.

The child under what circumstances to be turned and brought away.

If the flooding occur after the sixth or seventh month, and the debility be extreme, the hand should be introduced into the uterus as soon as its mouth is sufficiently dilated, and the child turned and brought away. And if, before this time, a considerable degree of irritation be kept up in the womb from a retention of the fetus or any considerable part of the ovum after its separation, one or two fingers should also be introduced for the purpose of hooking hold of what remains, and bringing it away at once.

Distress from a retention of the fetus when dead.

Such a retention is often exceedingly distressing, the dead parts continuing to drop away in membranous or filmy patches for several weeks intermixed with a bloody and offensive mucus. And not unfrequently some danger of a typhous fever is incurred from the corrupt state of the unexpelled mass.

The strength to be here supported.

In this case, the strength must be supported with a nutritious diet, a liberal allowance of wine, and the use of the warm bitters, with mineral acids.

Uterus to be washed with stimulant and antiseptic injections.

It is also of great importance that the uterus itself be well and frequently washed with stimulant and antiseptic injections, as a solution of alum or sulphate of zinc, a decoction of cinchona or pomegranate bark, a solution of myrrh or benzoin, or, what is better than any of them, negus made with rough port wine. The injection must not be wasted in the vagina, but pass directly into the uterus; and, on this account, the syringe must be armed with a pipe made for the purpose and of sufficient length.

Summary of treatment.

The application of cold then, plugging the vagina, opium, and perfect quiet, and, where the pulse is full, venesection, are the chief remedies to be employed in abortions, or threatenings of abortion, accompanied with profuse hemorrhage: and where these do not succeed, and especially after the sixth month, immediate delivery should be resorted to. The process, however, of applying cold

should not be continued longer than the hemorrhage demands; for cold itself, when in extreme, is one of the most powerful sources of sensorial exhaustion we are acquainted with. And hence, where the system is constitutionally weak, and particularly where it has been weakened by a recurrence of the same discharge, it may be a question well worth weighing whether any thing below a moderately cool temperature be allowable even on the first attack? as also whether the application of warm cloths to the stomach and extremities might not be of more advantage? for unless the extremities of the ruptured vessels possess some degree of power they cannot possibly contract, and the flow of blood must continue. And it is in these cases that benefit has sometimes been found by a still wider departure from the ordinary rules of practice, and the allowance of a little cold negus. So that the utmost degree of judgment is necessary on this occasion, not only how far to carry the established plan, but on peculiar emergencies how far to deviate from, and even oppose it.

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We have said that the hemorrhage which takes place in abortions, however profuse, is rarely accompanied with serious effects. This, however, must be limited to the first time of their taking place: for if they recur frequently in the course of a single gestation, or form a habit of recurrence in subsequent pregnancies, the blood, from such frequent discharges, loses its proper crasis; the strength of the constitution is broken down; the sensorial fluid is secreted in less abundance, perhaps in less energy; and all the functions of the system are of consequence performed with a considerable degree of languor. The increasing sensorial weakness produces increasing irritability: and hence slighter external impressions occasion severer mischief, and the patient becomes subject to frequent fits of hysteria, and other spasmodic affections. Nor is this all: for the stomach cannot digest its food, the intestines are sluggish, the bile is irregularly secreted, the heart acts feebly; and the whole of this miserable train of symptoms is apt to terminate in dropsy.

Hemorrhages from abortion increase in danger as they increase in recurrence.

Evil effects of frequent abortions.

GENUS II.

PARODYNIA.

Morbid Labour,

THE PROGRESS OF LABOUR DISTURBED OR ENDANGERED BY IRREGULARITY OF SYMPTOMS, PRESENTATION OR STRUCTURE.

GEN. II. Regularity with which utero-gestation completes itself and terminates.

THE generic term is a Greek compound from παρὰ, malè, and ὠδὶν or ὠδὶς,-ινος, "dolor parturientis". All the different species of viviparous animals have a term of utero-gestation peculiar to themselves, and to which they adhere with a wonderful precision. Among women we have already said that this term is forty weeks, being nine calendar or ten lunar months. Occasionally the expulsory process commences a little within this period, and occasionally extends a little beyond it: but, upon the whole, it is so true to this exact time as clearly to show it to be under the influence of some particular agency, though the nature of such agency has never been satisfactorily pointed out. Sometimes the weight of the child has been supposed to force it downwards at this precise period, and sometimes the uterus has been supposed to contract, from its inability of expanding any farther, and hence from an irritable excitement produced by the pressure of the growing fetus. By other physiologists it has been ascribed to the increasing activity of the child, and the uneasiness occasioned by its movements. But it is a sufficient answer to all these hypotheses to remark that a like punctuality is observed whether the child be small or large, alive or dead; unless, indeed, the death took place at a premature period of the pregnancy; for "No fact," says Dr. Denman, "is more incontestably proved than that a dead

Supposed causes of labour pains on the completion of pregnancy.

child, even though it may have become putrid, is commonly born after a labour as regular and natural in every part of the process as a living one:" * and hence we can only resolve it into the ordinary law of instinct or of nature, like that which regulates the term of menstruation, or assert still more intelligibly with Avicenna that, "at the appointed time labour comes on by the command of God."

Gen. II. Parodynia. Morbid labour.

All inapplicable or unsatisfactory: and hence best resolved into the ordinary law of instinct, or the appointment of Providence by a general law.

In natural labour, which consists in a gradual enlargement of the mouth of the womb, and the diameter of the vagina, so as to suffer the child to pass away when urged from above by a repetition of expulsatory contractions of the uterus and all the surrounding muscles, there is little or no danger, however painful or distressing to the mother. These contractions, or labour-pains, continue with a greater or less regularity of interval and recurrence from two hours to twelve, the process rarely terminating sooner than the former period, or later than the latter: the ordinary term being about six hours.

Little or no danger in natural labour.

Ordinary term of labour from two hours to twelve.

But unhappily labours do not always proceed in a natural course; for sometimes there is a feebleness or irregularity in the muscular action that greatly retards their progress; or a derangement of some remote organ that sympathizes with the actual state of the uterus, and produces the same effect; or the mouth of the uterus itself is peculiarly rigid and unyielding; or the natural presentation of the child's head may be exchanged for some other position; or the maternal pelvis may be misshapen, and not afford convenient room for the descent of the child; or there may be a plurality of children; or, even after the birth of the child, the placenta may not follow with its ordinary regularity; or an alarming hemorrhage may supervene; each of which conditions becomes a distinct species of disease in the progress of morbid labour, and the whole of which may be arranged as follow:

Causes of morbid labour.

1. PARODYNIA ATONICA. ATONIC LABOUR.
2. ——— IMPLASTICA. UNPLIANT LABOUR.

* Pract. of Midwifery, 8vo. Edit. 5, p. 286.

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3.	PARODYNIA SYMPATHETICA.	COMPLICATED LABOUR.
4.	——— PERVERSA.	PRETERNATURAL PRESENTATION. CROSS-BIRTH.
5.	——— AMORPHICA.	IMPRACTICABLE LABOUR.
6.	——— PLURALIS.	MULTIPAROUS LABOUR.
7.	——— SECUNDARIA.	SEQUENTIAL LABOUR.

SPECIES I.

PARODYNIA ATONICA.

Atonic Labour.

LABOUR PROTRACTED BY GENERAL OR LOCAL DEBILITY, OR HEBETUDE OF ACTION.

Gen. II. Spec. I. Pathological remarks.

It often happens in various affections of the system that a general law is incapable of being carried into effect with promptness and punctuality from weakness or indolence of the organs that are chiefly concerned in its execution. Thus, when vaccine or variolous fluid is properly inserted under the cuticle, it remains there in many cases for several days beyond its proper period, in a dormant state from inirritability or indolence in the cutaneous absorbents: and, in the case of small-pox, even where the fluid has been received into the system, whether naturally or by inoculation, and has excited febrile action, this action is, in many instances, very considerably augmented from a like indolence or inirritability of the secernents of the skin, which do not throw off the morbid matter sufficiently on the surface.

A like want of harmonious action very frequently occurs in parturition. The full time has expired—the uterus

feels uneasy, and the uneasiness is communicated to the adjoining organs, and there are occasional pains in the back or in the lower belly, but either from a weakness, or bebetude, or both, in the uterus itself, or in the muscles that are to co-operate with it in expelling the child, the pains are not effective and the labour makes little progress.

Parodynia atonica. Atonic labour. Applied to atonic labour.

It often happens, also, in debilitated habits that while in some parts of its progress the labour advances kindly and even rapidly, the little strength the patient possesses is worn out, and her pains suddenly cease; or, what is worse, still continue, but without their expulsory or effective power, and, consequently, do nothing more than tease her, and add to the weakness. This exhaustion will sometimes occur soon after the commencement of the labour, or in its first stage, before the os uteri has dilated and while the water is slowly accumulating over it; but in this stage it is more likely to occur if the membranes should have prematurely given way, and the water have been already evacuated. Yet it occurs also, occasionally, towards the close even of the last stage, and when the head of the child has completely cleared itself of the uterus, and is so broadly resting on the perinæum, that a single effective pain or two would be sufficient to send it without any assistance into the world.

Labour rendered lingering from ineffective pains. From a cessation of pains produced by a cessation of strength. Such exhaustion shows itself at different stages of the labour.

In the greater number of these cases, to wait with a quiet command of mind, and soothe the patient's despondings spirits by a thousand little insinuating attentions, and a confident assurance that she will do well at last, is the best if not the only duty to be performed. A stimulant injection, however, of dissolved soap or muriate of soda will often re-excite the contractions where they flag, or change the nature of the pains where they are ineffective. After this it is often useful to give thirty or five and thirty drops of laudanum, and to let the patient remain perfectly quiet. It is not certain in what way the laudanum may act, for it sometimes proves a local stimulant, and sometimes a general sedative, but in either way it will be serviceable and nearly equally so; for it will either shorten the labour by re-exciting and invigorating the pains, or

Treatment to be pursued. Soothing and consoling assurances. Stimulant injections. Laudanum.

Gen. II. Spec. I. Parodynia atonica. Atonic labour.

increase the general strength by producing sleep and quiet.

Spurred rye.

In America it has of late been a common practice to employ spurred rye in cases of this kind, as we have already observed under Paramenia *difficilis**, for which also it is very generally had recourse to: it being supposed to have a specific power in stimulating the uterus: and the cases adverted to are so numerous and authentic in which it seems to have been serviceable in exciting labour-pains under the present affection that it ought to be tried in our own country.

Cordials to be allowed in moderation.

If the pulse should be quick and feeble with languor and a sense of faintness at the stomach, a little mulled wine or some other cordial may be allowed. If the mouth of the womb be lax and dilatable, and the water have accumulated largely and protrude upon it as in a bag, advantage is often gained by breaking the membranes and evacuating the fluid, for a new action is hereby given to the uterus, and while it contracts with more force it meets with less resistance, and its mouth is more rapidly expanded. But unless the labour should have advanced to this stage, the membranes should never be interfered with; for their plasticity, and the gradual increase and pressure of their protruding sac against the edges of the os uteri, form the easiest and surest means of enlarging in, whilst the retention of the fluid in this early stage of parturition lubricates the inner surface of the womb, and tends to keep off heat and irritation.

When prudent to break the waters.

Injurious to attempt to dilate mouth of the uterus unless when narrow and rigid.

For the same reason, if the mouth of the womb be narrow and have hitherto scarcely given way, the application of the finger can be of no advantage. Every attempt to dilate it must be in vain, and only produce irritation, and an increased thickening in its edges: but if it have opened to a diameter of two inches, and be at the same time soft and expansile, advantage should be taken of the pains to dilate it by the introduction of one or two fingers still further, which should only, however, co-operate with the

When the fingers may be applied with advantage.

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* Ut supra, p. 54.

pains, and be employed while they are acting; and by these conjoint means the head of the child sometimes passes rapidly and completely out of the uterus into the vagina, or outer mouth as it is called on these occasions.

Gen. II. Spec. I. Parodynia atonica. Atonic labour.

We have said that it is sometimes apt to lodge here in consequence of the patient's exhaustion, and an utter cessation of all pains, or of all that are of any avail. The patient should again therefore be suffered to rest, and, if faint, be again recruited with some cordial support. Generally speaking, time alone is wanting, and the practitioner must consent to wait: and it will be better for him to retire from his patient, and to wait at a little distance. But if several hours should pass away without any return of expulsory efforts, if there should be frequent or continual pains without any benefit, if the patient's strength should sink, her pulse become weak and frequent, if the mind should show unsteadiness, and there be a tendency to syncope, and if, at the same time, the head be lying clear on the perinæum, the vectis or forceps should be had recourse to, and the woman be delivered by artificial means. This situation forms a general warrant: but for the peculiar circumstances in which such or any other instruments should be employed, the manner of employing them and the nature of the instruments themselves, the reader must consult such books as are expressly written upon the subject, and should sedulously attend the lectures and the introductory practice which are so usefully offered to him in this metropolis.

When the head has passed into and lodges in the vagina, if the pains cease, no attempt should at first be made to re-excite them.

When assistance is necessary the vectis or forceps to be employed.

SPECIES II.

PARODYNIA IMPLASTICA.

Unpliant Labour.

LABOUR DELAYED OR INJURED FROM IMPLASTICITY OR UNKINDLY DILATATION OF THE SOFT PARTS.

Gen. II. Spec. II. How chiefly distinguished from the preceding species.

The tediousness and difficulty of the preceding species of labour proceed chiefly from atony or hebetude of the

GEN. II. SPEC. II. Parodynia implastica. Unpliant labour.

system generally, or of the local organs particularly. But it often happens that the parts dilate and the labour proceeds as slowly from an implasticity, or rigid resistance to the expansion and expulsory efforts which should take place, according to the law of nature, at the fulness of time which we are now supposing to be accomplished, and which is sometimes productive of other evils than that of protracted suffering, offering us indeed the four following varieties:—

α Rigiditatis.	The delay confined to a simple rigidity of the uterus or outer mouth.
β Prolapsa.	Accompanied with prolapse.
γ Hæmorrhagica.	Accompanied with hemorrhage.
δ Lacerans.	Accompanied with laceration of the uterus or perinæum.

α P. implastica rigiditatis. Parturient rigidity.

RIGIDITY OF THE UTERUS may extend to the entire organ, or be limited to the cervix, or os uteri as it is called after the cervix has lost its natural form, and partakes of the sphæroidal shape of the fundus. Where the former occurs the practitioner meets with severe pains in the loins, shooting round to the lower belly and producing great contractile efforts of the muscles surrounding the uterus, so as to throw the patient from the violence of her exertions into a profuse perspiration, and induce the attendants to believe that the labour is advancing with great speed, while the practitioner himself finds, on examination, that there is no progress whatever; that the uterus itself does not unite in the expulsory force, the fluid of the amnios does not accumulate over the os uteri, nor the head of the child bear down upon it.

Symptoms when the rigidity proceeds from the general organ of the uterus.

Symptoms when the rigidity is chiefly seated in the os uteri.

In other cases, he finds that the general organ of the uterus does participate in the common action, and force the head of the child downward, but that the mouth of the womb does not dilate or become thinner in consequence hereof; appearing on the contrary, in some cases, from a peculiar tenderness and irritation, to grow thicker and tenser, and more intractable.

Gen. II. Spec. II. α P. implastica rigiditatis. Parturient rigidity. Symptoms when seated in the os externum. Treatment.

And he not unfrequently finds even where both the body and mouth of the womb are sufficiently pliable and co-operative with the common intention, and the head of the child has become easily cleared of this organ, that a like rigidity and implasticity exist in the os externum, and that the child having readily worked its way thus far, is fast locked from this circumstance, and cannot get any further.

In all cases of this kind the same means of relaxation should be resorted to as in an irritable or inflammatory tenseness and rigidity of other organs. Blood should be freely abstracted, active purgatives be given by the mouth, and copious emollient injections be administered without much aperient virtue, so that they may for some time remain in the rectum and act as a fomentation. And here also it may be advantageous to apply round the loins and lower belly, a broad swathe of flannel wrung out in hot water, and to encircle it with an equally broad band of folded linen, in the manner already recommended in PARAMENIA DIFFICILIS.

β P. implastica prolapsa. Parturient prolapse.

In several cases of rigidity, if no means be adopted to subdue the tension, the protrusive force of the surrounding muscles is sometimes so considerable that, as it cannot expel the child by itself, it goes far to expel the child and the uterus conjointly, the latter being thrust downward into the outward passage and its mouth projecting out of the vulva, thus constituting a PARTURIENT PROLAPSE.

Treatment.

While the uterus is thus forcibly descending, the attendant should support it, or the head of the child, with two fingers: if the prolapse be complete, the uterus should be returned into its proper place as quickly as possible; and if this cannot be done, the child must be turned, and delivery take place as speedily as may be.

γ P. implastica hæmorrhagica. Parturient hemorrhage.

In the violence of this struggle, it sometimes happens moreover, and particularly where the water has escaped, that some of the vessels give way, or the placenta is partly detached, and there is the additional evil of a PROFUSE HEMORRHAGE to contend with.

If this occur in the commencement of labour, venesection should generally be had recourse to, the patient be

GEN. II. SPEC. II. γ P. implastica haemorrhagica. Parturient hemorrhage. Treatment.

kept cool and quiet, and take thirty drops of laudanum. If the labour have advanced and is advancing rapidly, and the hemorrhage be not very considerable, we may safely trust to nature to complete the process before any serious mischief ensues. But if the patient be debilitated, or much exhausted, or the labour advance slowly, the woman should be delivered by turning the child, or having recourse to the forceps according to the progress of the labour, and the position of the child at the time.

δ P. implastica lacerans. Parturient laceration.

But there is a far worse evil than any of these, which results from the implasticity we are now considering: and that is a rupture or LACERATION either OF THE VAGINA OR OF THE UTERUS.

Causes of laceration:

The causes of laceration are said to be numerous, and it often occurs suddenly and without any known cause: but if we examine into their general nature, we shall find that except in the case of brutal force or want of skill, they are

mostly dependent on implasticity:

almost always dependent on a certain degree of implasticity in the lacerated part of the organ which prevents it from yielding with the uniformity of the other parts, or, from a peculiar degree of irritability that renders it more liable to irregular action or spasm: though there can be no question that in a very few instances the laceration has

sometimes from the sharp edge of the ilium.

commenced from a cut produced by an occasional sharpness of the edge of the ilium. "Those women", observes Mr. Burns, "are most liable to rupture of the uterus who are very irritable, and subject to cramp; or who have the pelvis contracted, or its brim very sharp, or who have the os uteri very rigid, or any part of the womb indurated. Schulzius relates a case where it was produced by scirrhus of the fundus; and Friedius one where it was owing to a carneo-cartilaginous state of the os uteri."*

Laceration of the fundus of the uterus may take place during any part of labour under particular circumstances.

Laceration of the fundus of the womb may take place during any part of the labour when the pains are violent, and the walls of the organ do not act in unison in every part; but the mischief more commonly commences in the cervix, when the head, or the shoulders, or any other part,

* Principles of Midwifery, 8vo. 3d. Edit. p. 361.

is passing through, and the whole of its circumference does not yield equally. Where the accident occurs in the vagina or perinæum, it must necessarily take place after the head has descended from the womb, and is pressing upon the substance of these organs that, like the lacerating os uteri, does not yield equally in every point.

Gen. II. Spec. II. 3. P. implastica lacerans. Parturient laceration.

Laceration of the cervix more common.

In most cases of an implastic rigidity, whether in the body of the uterus itself, or in its cervix, or in the os externum, there is a considerable degree of local irritation, and in very many of them of firm and vigorous action. The parts are not only rigid, but dry, and hot, and tender, and the pulse is generally full with restlessness, and a heated skin. And hence venesection is imperatively called for from an early period of the labour; and there are few cases in which the uterus has not acted afterwards with more freedom, and its mouth been rendered laxer, softer, and more compliable. In all such cases also an emollient injection several times repeated, will considerably co-operate in taking off the tension, and increasing the expansibility. Here opium should be avoided, but general relaxants, as antimony and ipecacuan, given in the neutral effervescing draught, may add to the general benefit. The operator must be abstinent till the parts have yielded and the tension and irritation subsided, for before this, every application of the fingers will only increase the morbid tendency.

Laceration of the vagina or perinæum.

Mode of treatment.

The only case in which the use of opium is here to be justified, is where, from the violence of the contractile pains, a considerable and an alarming hemorrhage has ensued, and the state of the os uteri will not allow of the introduction of the hand for the purpose of turning and delivering immediately. In this instance, after venesection and a due administration of emollient and aperient injections, our last dependence must be upon a powerful opiate for the purpose of allaying the irritation and taking off the pains.

Opium when allowable.

And if the force of the expulsory power thrust down the uterus so as to give danger of producing a prolapse, the practitioner must support the organ during the recurrence of the pains, by introducing two fingers into the vagina

If prolapse be threatened, the uterus to be supported during pains;

Gen. II. Spec. II. ♃ P. implexa laceranda. Parturient laceration.

for this purpose, and the patient must be kept in a recumbent position without moving from it; and must be instructed to avoid as much as possible every expulsory or bearing-down exertion while the pain is upon her. If the uterus have actually protruded into the vagina, a reduction must be instantly attempted; and if this cannot be done, no time should be lost in passing the hand through the cervix, as soon as, without force, it can be sufficiently dilated for this purpose, and delivering the child by turning.

and the patient avoid bearing down.

If a prolapse a reduction to be instantly attempted, or the child be turned and brought away.

Laceration often occurs suddenly, though sometimes preceded by cramps.

Laceration generally takes place suddenly, though, in irritable habits, cramps or other spasmodic affections are often previously complained of in different parts of the body. Mr. Burns has well described the symptoms that succeed: "When this accident does happen the woman feels something give way within her, and usually suffers at that time an increase of pain. The presentation disappears more or less speedily unless the head have fully entered the pelvis, or the uterus contract spasmodically on part of the child, as happened in Bechling's patient *. The pains go off as soon as the child passes through the rent into the abdomen: or if the presentation be fixed in the pelvis, they become irregular and gradually decline. The passage of the child into the abdominal cavity is attended with a sensation of strong motion of the belly, and is sometimes productive of convulsions."†

General description of symptoms on a rupture of the womb.

Effects of laceration the same, whether in the body or neck of the womb or the vagina.

It is not necessary to make a distinction between the parts in which the laceration takes place: for whether it be in the fundus or cervix of the womb, or in the vagina, except where, as just observed, the position is fixed in the pelvis, the part presented instantly disappears, and the child slips imperceptibly through the chasm into the hollow of the abdomen, sometimes with a hemorrhage that threatens life instantly, but sometimes with little or even no hemorrhage whatever.

Sometimes occurs towards the close of a labour of good promise.

This accident will not unfrequently occur towards the close of a labour that promises fair. It is not many years

* Haller, Disput. Tom. III. p. 477.

† Burns, ut suprà, p. 362.

ago, when the present author, at that time engaged in this branch of the profession, was requested with all speed to attend, in consultation, upon a lady in Wigmore Street, who was then under the hands of a practitioner of considerable skill and eminence. She had for about eight hours been in labour of her first child, herself about thirty-eight years of age, had had natural pains, and been cheered throughout with the prospect of doing well, and even more rapidly than usual under the circumstances of the case. In fact the head had completely cleared the os uteri and was resting on the perinæum, and the obstetric practitioner was flattering himself that in a quarter of an hour at the farthest, he should be released from his confinement, when he was surprised by a sudden retreat of the child during a pain which he expected would have afforded her great relief, accompanied with an alarming flooding: and it was in this emergency the author of this work was requested to attend. On examination, it was ascertained that a large laceration had taken place in the uterus, commencing at the cervix and apparently on the passing of the shoulders, but why any part of it should have torn at this time rather than antecedently there were no means of determining. It is usual, under these circumstances, to follow up the child with the hand through the rupture into the abdomen, and to endeavour to lay hold of the feet, and withdraw it by turning. The hemorrhage had alarmed the practitioner, and this had not been attempted; and at the time of the author's arrival, which was about an hour and a half afterwards, the attempt was too late, for the pulse was rapidly sinking, the breathing interrupted, and the countenance ghastly, yet the patient had not totally lost her self-possession, and, being informed of her situation, begged earnestly to be let alone, and to be suffered to die in quiet.

Gen. II. Spec. II. } P. implastica lacerans. Parturient laceration.

Exemplified.

Child in this case usually followed up into the mother's body and brought away by the feet.

Where there is little or no hemorrhage, the life usually continues much longer, whether the child be extracted or not; mostly about twenty-four hours; though in some cases considerably longer still. Dr. Garthshore attended a patient who lived till the twenty-sixth day, and the

Life continues usually about twenty-four hours after the accident.

Gen. II. Spec. II. ♄ P. implastica lacerans. Parturient laceration.

Copenhagen Transactions* contain the case of a woman, who, after being delivered, lingered for three months: and a few marvellous histories are given in the public collections of a natural healing of the uterus while the child continued as a foreign and extra-fetal substance in the cavity of the abdomen for many years. Haller has reported a case in which it continued in this state for nine years†; and others relate examples of its remaining for sixteen‡, and even twenty-six years§, or through the entire term of the mother's natural life.

Sometimes longer.

Twenty-sixth day.

Three months.

A few rare accounts of a natural cure of the uterus, and a continuance of the ex-fetus in the abdomen for many years or through life.

The only rational hope of saving both the mother and the child is by following up the latter through the rupture, and delivering it by the feet: but where this cannot be done from the smallness of the dilatation of the os uteri, or from the violent contraction of the uterus between the os uteri and the rent, we have nothing to propose but to leave the event to nature, or to extract the child by the Cesarean operation. We have just seen that in a few rare instances the vis medicatrix Naturæ, or instinctive tendency to health, has succeeded in healing the wound and restoring the patient with the fetus still inhabiting the belly. But this result is so little to be expected that an incision into the cavity of the abdomen has not unfrequently been tried, and in some instances unquestionably with success‖.

Where the child cannot be followed up, the case must be left, or the Cesarean operation be performed.

* Tom. II. p. 326. † Mem. de Paris. 1773.

‡ Eph. Nat. Cur. Dec. I. Ann. III. Obs. 12.

§ Id. Dec. II. Ann. VIII. Obs. 134.

‖ Progrés de la Medicine, 1698. 12mo.—Abhandlung der Königl. Schwed. Acad. 1744.—Hist. de l'Acad. Royale des Sciences, 1714. p. 29. 1716. p. 28.

SPECIES III.

PARODYNIA SYMPATHETICA.

Complicated Labour.

LABOUR RETARDED OR HARASSED BY SYMPATHETIC DERANGEMENT OF SOME REMOTE ORGAN OR FUNCTION.

GEN. II. SPEC. III. Extensive range of sympathy between the uterus and other organs: whence the present species of disease.

We have often had occasion to observe that, with the exception of the stomach, there is no organ that holds such numerous ramifications of sympathy with other organs as the womb: and we hence find the progress of parturition disturbed, and what would otherwise be a natural, converted into a morbid labour by the interference of various other parts of the body, or the faculties which appertain to them. The whole family of varieties which issue from this source are extremely numerous: but the three following are the chief:

α Pathematica.	Accompanied with terror or other mental emotion.
β Syncopalis.	Accompanied with fainting.
γ Convulsiva.	Accompanied with convulsions.

α P. sympathetica pathematica. Complicated with mental emotion, and hence retarded. Pains hereby sometimes entirely driven away.

In the PATHEMATIC VARIETY, the joint emotions which are usually operative upon a patient's mind, and especially on the first labour, are bashfulness on the presence of her medical attendant, and apprehension for her own safety. There is not a practitioner in the world but must have had numerous instances of a total suspension of pains on his first making his appearance in the chamber. And in some cases the pains have been completely driven away for four and twenty hours, or even a longer term.

Explained.

There is nothing extraordinary in this, for two powerful morbid actions are seldom found to proceed in the

Gen. II. Spec. III. α P. sympathetica pathematica. Complicated with mental emotion.

animal frame simultaneously; and hence pregnancy is well known to put by phthisis, and the severest pain of a decayed tooth to yield to the dread of having it extracted, while the patient is on his way to the operator's house.

Duty of the attendant in relation to the above source of delay.

It is hence of great importance that the bespoken attendant should familiarise himself to his patient before his assistance is required, and endeavour to obtain her entire confidence: and it is better, when he is first ushered into her presence, in his professional capacity, that he should say little upon the subject of his visit, direct the conversation to some other topic of general interest, and then withdraw till he is wanted. And if the idea alone of his approach be peculiarly harassing, it is best for him to be in a remote part of the house in readiness, and not to see his patient, till her pains have taken so strong a hold as to be beyond the control of the fancy.

If her apprehensions for herself be very active, and if there be any particular ground for them, it is most reasonable to enter candidly on the question, and to afford her all the consolation that can be administered.

β P. sympathetica syncopalis. Complicated with and retarded by syncope.

Syncope in labour proceeds commonly from a peculiar participation of the stomach in the irritation of the womb, and is hence often connected with a sense of nausea, or with vomiting. Occasionally it occurs also from the exhaustion produced by the violence of the pains; and particularly in relaxed and debilitated habits, in which case the fainting fits sometimes follow up each other in very rapid succession, and require very close attention on the part of the practitioner and the patient's friends.

Remedial process.

The usual remedies should here be had recourse to in the first instance: pungent volatiles should be applied to the nostrils, the patient be in a recumbent position, with the curtains undrawn, and, unless the season of year prohibit, with the windows open; the face, and especially the forehead and temples, should be sprinkled with cold water or ether; and the usual volatile fetids, aromatics, and terebinthinates, as camphor, should be given by the mouth: and to these, if necessary, and particularly where the pulse

is feeble and fluttering, should be added a glass or two of Madeira, or any other cordial wine, with twenty drops of laudanum.

Gen. II. Spec. III. β P. sympathetica syncopalis. Complicated with and retarded by syncope. Treatment.

If this plan should not answer, and especially if the fainting fits should increase in duration and approximation to each other, the patient must be delivered by the process of turning as soon as ever the os uteri is sufficiently dilated to let the hand pass without force.

If this do not succeed the patient to be delivered.

One of the worst and most alarming of the associated symptoms in labour is that of CONVULSIONS, and these are often connected with fainting fits, and the two alternate with each other. We have already glanced at them generally under SYSPASIA CONVULSIO*, but must dwell a little more at large upon the present modification.

γ P. sympathetica convulsiva. Parturient convulsions. Proximate cause a peculiar irritation of the womb; hence the only radical cure a termination of the labour.

Convulsions may occur during any period of gestation, but we are now to consider them as an accompaniment of labour and as interrupting its progress. Their proximate cause is a peculiar irritation of the nervous system as participating in the irritation of the womb: and hence it is obvious that the radical and specific cure is a termination of the labour.

Predisponent causes.

We cannot always trace the link of this peculiar influence of the womb upon the nervous system: though, where there is a predisposition to clonic spasm of any kind, we can readily account for its excitement, and may be under less apprehension than where it occurs without any such tendency. The occasional causes of fainting are the occasional causes of convulsions; and hence they are apt to follow, and particularly in delicate or debilitated constitutions, on the fatigue and exhaustion of violent and protracted pains, great depression of the animal spirits, and profuse hemorrhage. Sometimes, however, they occur where none of these are present, and where the patient is of a strong plethoric habit of body, and especially if it be her first time of pregnancy: and are accompanied with or even preceded by a sense of dizzness and oppression in the

Occasional causes.

Sometimes produced by entonic plethora.

* Vol. IV. p. 547.

Gen. II. Spec. III. γ P. sympathetica convulsiva. Parturient convulsions. Description.

head, ringing in the ears, or imperfect vision: the plethora itself thus forming the occasional cause.

The attendant symptoms are peculiarly violent, sometimes resembling those of hysteria, sometimes those of epilepsy, but more vehement than in either of these. Nothing can restrain the spastic force of a woman when in parturient convulsions, whatever be her natural weakness. The distortion of the countenance is more hideous than the most extravagant imagination can conceive: and the rapidity with which the eyes open and shut, the sudden twirlings of the mouth, the foam that collects about the lips, the peculiar hiss that issues from them, the stertor, the insensibility, and the jactitating struggle of the limbs, form a picture of agony that cannot be beheld without horror.

Danger of rupturing the vessels in the head from the violence of the action whatever the occasional cause.

Hence this chiefly to be guarded against.

The exciting cause is the irritable state of the womb; and, whatever be the predisponent or occasional cause, whether a debilitated and mobile condition of the nervous system, or a robust and entonic fulness of the blood-vessels, it is obvious that such violence of action cannot take place under any circumstances without endangering a rupture of the vessels in the head, and consequently all the mischiefs of apoplexy. It is against this, indeed, that all practitioners, how much soever they may disagree upon other points, most cordially endeavour to guard, though it rarely happens that effusion in the brain, and some of its results, do not take place in spite of all their exertions.

Medical treatment.

Copious bleeding, and from the jugular vein.

The head to be kept chilled.

Purgatives.

The first step is to open a vein and bleed copiously, from a large orifice, till the patient faints: and if the operator be expert, the best vein to make choice of is the jugular: the hair should be immediately removed from the head, and lotions of cold water, pounded ice, or the freezing mixture, produced by dissolving three or four different sorts of neutral salts in water at the same time, be applied all over it by wetted napkins changed for others as soon as they acquire the least degree of warmth. At the same time a purgative injection should be thrown up the rec-

tum, and five or six grains of calomel be given by the mouth with a draught of sulphate of magnesia in infusion of senna. The paroxysms must, if possible, be put a stop to, the fatal effects they threaten must be anticipated, and not a moment is to be lost

Gen. II. Spec. III. γ P. sympathetica convulsiva. Parturient convulsions. Treatment.

This is the general plan; and it is to be pursued under all circumstances, though its extent, and particularly in regard to blood-letting, must be regulated by the strength and energy of the patient. The local mode of treatment seems to be somewhat less decided.

This plan to be pursued under every modification.

It may happen that at the attack of the fits, the os uteri is merely beginning to open, or that it is of the diameter of a crown piece, but peculiarly rigid and undilatable. There are practitioners who, in this case, confine themselves to the depleting plan, and only wait for the advance of the labour: but, in the state of the uterus we are now contemplating, they may have to wait for some hours before the labour is so far advanced as to render them capable of affording any manual assistance whatever, while the fits are, perhaps, recurring every quarter of an hour, and threatening fatal mischief to the brain. And in this case I cannot but warmly approve of the bolder, or rather the more judicious advice of Dr. Bland, who, after a due degree of depletion, recommends a full dose of opium, for the purpose of allaying the nervous irritation generally, and particularly that of the uterus, which is the punctum saliens of the whole. A few hours' rest may set all to rights, if no vessel have thus far given way in the head: for when the next tide of pains returns, it will commence under very different circumstances in consequence of the reducent course of medicine that has been pursued: and it will rarely be found that the whole body of the uterus is not rendered more lax and plastic, and consequently its cervix, and even the os externum, more yielding and dilatable.

Local medical treatment. State of the uterus to be cautiously watched.

If the os uteri peculiarly rigid, the practitioner's hand must be quiet:

but after depletion a full dose of laudanum must be given.

But this is not the common course which the uterus takes under these circumstances; for, in by far the greater number of cases, the whole of this organ, the cervix as well as the fundus, is so exhausted in the general contest, as to

Commonly, however, the whole uterus relaxed and the mouth

Gen. II. Spec. III. γ P. sympathetica convulsiva. Parturient convulsions. Treatment.

be more than ordinarily relaxed and flaccid, and dilatable with considerable ease: insomuch that if the muscular power of the system were now concentrated in a common expulsory effort, as in natural labours, the whole process would terminate in a few minutes. But unfortunately this muscular exertion, instead of being concentrated, is distracted and erratic, and wandering over all the muscles and organs of the system, producing general mischief instead of local benefit: so that whatever pains there may be, they are of far less use than in a state of harmonious action.

easily dilatable.

This state readily capable of being ascertained.

This may be easily ascertained by introducing the hand on a return of the paroxysm, when the uterus will be found to contract, indeed, but with a tremulous undetermined sort of force, perfectly different from what it does at any other time.

The obvious remedy in this case to break the membranes, and turn and bring away the child.

The necessary practice in this case should appear to be obvious and without doubt: the medical attendant seems imperatively called upon to introduce his hand into the os uteri, as soon as it is sufficiently open for him to do so without force, to break the membranes if not broken already, lay hold of the child's feet, deliver by turning, and thus put an end to the convulsions at once, and, consequently, to the fatal effects which seemed to await the mother as well as the child.

Such the practice of Mauriceau, Smellie, W. Hunter, and Lowder.

Such was the practice recommended by Mauriceau upwards of a century since: "La convulsion", says he, "fait souvent perir la mere et l'enfant, si la femme *n'est pas promptement secourue par l'accouchement*, qui est le meilleur remède qu'on puisse apporter à l'une et à l'autre."* This recommendation was adopted generally, and in our own country successively by Smellie, W. Hunter, and Lowder. And although, in circumstances of so much danger, it was not and could not be always successful, yet it was supposed, and with reason, to be the means of saving the life as well of the mother as of the child, in very numerous instances in which that of one or of both would otherwise have unquestionably perished.

* Traité des Maladies des Femmes grosses. Tom. I. 23. 4to. Paris, 1721.

Gen. II. Spec. III. Parodynia sympathetica. Complicated labour. Treatment.

Some forty years after the publications of M. Mauriceau's work, Professer Roederer of Goettingen called this practice in question, and recommended that the patient be left to the natural course of the labour *: and we are told by Dr. Denman that in our own country Dr. Ross, toward the close of last century, "was the first person of late years, who had courage to declare his doubt of the propriety of speedy delivery in *all cases* of puerperal convulsions. The observation", continues Dr. Denman, "on which these doubts were founded, was merely practical, and the event of very many cases has since confirmed the justice of his observation, both with respect to mothers and children."†

Mauriceau opposed by Roederer, and afterwards by Ross.

The sweeping extent of this censure seems to show that the practice had often been had recourse to indiscriminately, and without a correct limitation. And the apparent concurrence of Dr. Denman in Dr. Ross's opinion, together with the undecided manner in which he treats of the question in his subsequent pages, has raised up amongst the most celebrated obstetric physicians of our own day, various advocates for leaving, in general, to nature the case of labour accompanied with convulsions, or at least till the natural efforts of the mother are found completely to fail; and in this last case, as the child's head may be supposed to have cleared the uterus, to have recourse to the perforator or the forceps, according to the nature of the position.

In our own day, delivery very often postponed, and the case left to nature.

The chief grounds for this proposed delay, as far as I have been able to collect them, are, that the introduction of the hand into the os internum, in the irritable state of the organ we are now contemplating, is more calculated to renew the convulsions than to put an end to them: that a repetition of them, after due depletion has been employed, is not so dangerous as is generally apprehended, and consequently that immediate delivery is by no means essential to the patient's safety: and lastly, that we are not sure of

Arguments for delay.

* Elementa Artis Obstetriciæ. Aph. 679. Goet. 1769. 8vo.

† Practice of Midwifery, p. 568. 8vo. 3d Edit. 1816.

Gen. II. Spec. III. Parodynia sympathetica.

putting an end to the convulsions, even after delivery is effected; since it is well known that they have occasionally continued, and sometimes have not commenced till the process of labour has been long completed.

Complicated labour. Treatment.

In reply to this, it may be observed that if a repetition of the convulsive fits be not so dangerous as is commonly apprehended, a practitioner should feel less reluctance in introducing the hand even though he were sure of exciting a single fit by so doing: and the more so as this single fit might perhaps be the means of terminating the whole, and, consequently, would be a risk bought at a cheap rate. At the same time it should be observed that general experience does not seem to justify the remark that a cautious and scientific use of the hand, where the mouth of the womb is sufficiently dilated, becomes a necessary or even a frequent excitement of fresh paroxysms; and the prediction of such an effect is therefore without sufficient foundation. And if there be a considerable chance, as seems to be admitted, that instrumental assistance will be requisite at last, and that the forceps, or what, in the probability of the child's being still alive, is ten times worse, the perforator, must be called into action, how much more humane is it, as well as scientific, to employ instrumental aid at first, and thus save the pain and the peril of perhaps many hours of suffering—and particularly when the soft, and supple, and plastic instrument of the hand, may supersede the use of the ruder, and rougher, and less manageable tools of art.

Arguments examined and replied to.

Question further examined.

But the most important part of the question is as to the actual degree of danger which is induced by convulsions; and to determine this, nothing more seems necessary than to put the whole upon the footing of an impending apoplexy. It is possible that no effusion in the brain may have taken place at the time when the depleting plan has been carried into execution, but if the paroxysms should still recur, surely few men can look at the violence of the struggle which they induce, at the bloated and distended state of the vessels of the face and of the temples, at the force with which the current of blood is determined to the head,

at the stertor and comatose state of the patient during the continuance of the fit, without feeling the greatest alarm at every return. And that he does not feel in vain is clear, because in various instances the insensibility continues after the paroxysm is over, accompanies her through the remainder of her labour, and is the harbinger of her death. Gen. II. Spec. III. Parodynia sympathetica. Complicated labour. Treatment.

Regarding puerperal convulsions, then, as a case of impending apoplexy produced by an exciting cause which it is often in our power to remove, it should seem to follow as a necessary and incontestable result, that in this, as in every other case in which the same disease is threatened, our first and unwearied attempt should be to remove such cause as far as it may be in our power, and whenever it is so. General conclusion.

It is not long since that the present author's opinion was requested upon a case of this very kind; but it was by the connexions of the patient who had already fallen a victim to her sufferings. She had been attacked with natural labour-pains and was attended by a female, who, alarmed by the sudden incursion of a convulsion-fit, sent immediately for male assistance. The practitioner arrived, and a consultation was soon held with several others: the os uteri is admitted to have been at this time open to the size of a crown-piece, soft, lubricous, and dilatable. The depleting and refrigerant plan was, however, confided in alone, and the labour was suffered to take its course. Expulsory pains followed at intervals, but the convulsions followed also, and became more frequent and more aggravated: in about six hours from the time of venesection, the patient became permanently insensible, and as the child's head, completely cleared of the uterus, had now descended into the pelvis, it was determined to deliver her by the forceps, which was applied accordingly; and in about an hour afterwards a dead child was brought into the world, whose appearance sufficiently proved that it had not been long dead. Striking illustration.

The source of irritation had now ceased, and with it the convulsions, but the patient continued comatose still: yet even this effect went off in seven hours afterwards, and she

GEN. II. SPEC. III. Parodynia sympathetica. Complicated labour. Treatment.

revived, and gave considerable hopes of recovery. On the second day, however, in consequence of the accession of milk-fever, the convulsions returned, immediately followed with stertor and insensibility, and on the ensuing day she died apoplectic.

How far a general issue may be drawn from a single case.

To reason from a single instance, whether successful or unsuccessful, is often to reason wrong. Yet it is difficult to avoid conjecturing that if immediate delivery had here taken place as soon as the sanguiferous system had been duly emptied, and when the state of the uterus was so favourable for a trial, two lives might have been spared, both of which were lost under the course pursued. It is true the fits returned with the milk-fever, but had the brain been less injured, there would have been far less danger of such return. The cases of Dr. Smellie and of Dr. Perfect concur in justifying such a conjecture: and the following passage of Mr. Burns should be committed to memory by every student and every practitioner. "But this is not all", adverting to the necessity of a free depletion, "for the patient is suffering from a disease connected with the state of the uterus, and the state is got rid of by terminating the labour. Even when convulsions take place very early in labour, the os uteri is generally opened to a certain degree, and the detraction of blood which has been resorted to on the first attack of the disease, renders the os uteri usually lax and dilatable. In this case, although we have no distinct labour-pains, we must introduce the hand, and slowly dilate it, and deliver the child. I entirely agree with those who are against forcibly opening the os uteri: but I also agree with those who advise the woman to be delivered as soon as we can possibly do it without violence. There is, I am convinced, no rule of practice more plain or beneficial. Delivery does not, indeed, always save the patient, or even prevent the recurrence of the fits, but it does not thence follow that it ought not to be adopted."*

The author's view supported by various authorities as Smellie, Perfect, Burns.

* Principles of Midwifery, p. 359. 3d Edit. 8vo. 1811.

SPECIES IV.

PARODYNIA PERVERSA.

Cross-Birth.

LABOUR IMPEDED BY PRETERNATURAL PRESENTATION OF THE FETUS OR ITS MEMBRANES.

GEN. II. SPEC. IV. Natural position of the fetus in the womb.

IN the ordinary course of gestation the fetus is rolled up into as small a compass as possible with the breast uppermost, and the head dependent, the legs incurvated and the arms folded: the placenta rises from some part of the fundus, and the umbilical cord hangs at perfect ease in loose folds, or is sometimes turned loosely round the body, thus forming an ellipse whose longer axis corresponds to the longer axis of the uterus. Why the head rather than the breast, or indeed any other part of the fetus should so uniformly constitute the point of presentation, we know not, excepting that it is by far the most commodious point for delivery; and we can hence only resolve it into one of those striking laws of nature which are ever aiming at accomplishing the best ends by the best means, and afford an unvarying and unequivocal proof of design united with benevolence and power.

This position most commodious for delivery; and dependent upon an instinctive law of nature.

Morbid deviations from this position.

Here, however, as in every other part of the animal economy, we meet with occasional deviations from the ordinary course of nature, and deviations which are always productive of evil. For it sometimes happens, from incidental causes that are totally concealed from us, that some other part of the child is lowermost or presents itself instead of the head; or that the placenta rises in an unfavourable part of the womb, or that the navel-string hangs down below the head and is constantly in danger of being

GEN. II. SPEC. IV. Parodynia perversa. Cross-birth.

strangled as the child passes through the sharp bones of the pelvis: and hence we have the following varieties of morbid condition offering themselves to us under the present species:

α Faciei.	Presentation of the face.
β Natium.	——— of the breech.
γ Pedis.	——— of one or both feet.
δ Brachialis.	——— of one or both arms.
ε Transversalis.	——— of the shoulder.
ζ Funis prolapsi.	Prolapsed navel-string.
η Placentæ.	Presentation of the placenta.

Present work not designed to instruct in the manual or artificial operations of the obstetric art;

but merely to take a view of the conditions in which they will be found necessary:

and to offer general remarks.

As it is by no means the object of the present work to instruct in the manual or artificial operations of the obstetric art, the author must limit himself to pointing out the different morbid conditions in which such operations will be found necessary. Their nature, mode of accomplishment, and effective instruments are only to be learnt by works written professedly on this subject, or, which is infinitely better, by an attendance on lectures, and such initiatory practice as the obstetric schools afford. A few general or incidental remarks are all that the author can undertake to add to the above table of morbid presentations.

Presentation of the child unknown before the time of labour:

and not positively to be spoken of till the membranes have broken.

Explained.

There is no mode of determining what may be the presentation of a child before the commencement of labour, and even at that time it is most prudent for a practitioner to speak with some hesitation on the subject till the membranes have actually broken, and the position is fully decided. For though the real presentation is often sufficiently ascertainable through the membranes themselves, and particularly on the natural descent of the head, yet it has occasionally happened that, on the breaking of the membranes, the head has receded and the shoulder or some other part taken its place; and there are cases in which the opposite and more fortunate change has occurred of a recession of a presenting shoulder and a descent of the head in its stead*.

* Joerg, Hist. Part. p. 90.—Burns, ut suprà, p. 292.

There is hence no foundation for those apprehensions which are often entertained by pregnant women respecting the misposition of the child, drawn from some peculiar symptom or feeling which she has never been conscious of on former times, as a singularity in the shape of the abdomen, a sense of the child's rising suddenly towards the stomach, or a numb or painful uneasiness in one leg more than in another. These, and hundreds of other anomalous sensations have occurred in cases where the presentation has at last been found natural, and the labour has proved highly favourable; while on the contrary it is very rarely, when a cross birth is detected, that it has been particularly apprehended by any precursive tokens whatever. And the mind of the timid may hence be comforted in the midst of all the peculiarities on which they are accustomed to hang with daily alarm.

Hence apprehensions of pregnant women drawn from imaginary tokens unfounded:

such tokens being often present in the natural presentation and absent in preternatural.

It will rarely be found necessary to have recourse to any mechanical instrument in any of the varieties we have enumerated above; and in some of them, as the breech and foot-presentations, the expulsory powers of nature generally are sufficient alone, at least till the head descends into the pelvis: at which time it will be found necessary, whenever the arms lie over the head, to introduce a finger or two and gently draw them down.

Mechanical means rarely necessary in any of the varieties of presentation belonging to this species.

Where the face presents, or any other part of the head than the vertex, it was formerly the custom to deliver by turning, but a skilful practitioner of the present day is commonly able, by a dexterous pressure of one or two fingers against particular parts of the head, and especially if attempted in an early stage of labour, to give the organ a right direction without introducing the hand.

Face presentation.

On the presentation, however, of a shoulder or of one or both arms, it will be expedient to turn as soon as possible; or, in other words, as soon as the mouth of the womb is sufficiently dilated for this purpose. It is singular that, while under the old practice, delivery by the feet was often endeavoured in face-cases, attempts were made in arm and shoulder-cases to bring down the head and reduce the labour to a natural course. This it seems has

Shoulder or arm presentation.

GEN. II. SPEC. IV. Parodynia perversa. Cross-birth.

been done and may be done, but with so much fatigue and exhaustion to the patient as to run the risk of incapacitating her for any subsequent efforts, if she do not even fall a sacrifice to a flooding as in a case related by Dr. Smellie. It is to the successful exertions of Paré and Mauriceau that the better practice of the present day has obtained a triumph over all Europe. Yet, in justice to the obstetric practitioners of ancient Greece, it should be observed that the modern method is little more than a revival of their own which unaccountably sunk into disfavour: for we are told by Ætius, that Philomeles discovered the method, at that time in common use, of turning and delivering children by the feet in all unnatural presentations. Where, however, the child is small, or of premature birth, it may sometimes be taken away without changing the presentation: for the obstetric writers abound in examples of delivery affected under such circumstances by pulling down the arm and drawing the head into the vagina *.

Spontaneous evolution in shoulder cases.

It sometimes happens that the shoulder is so far advanced into the pelvis before the arrival of the practitioner, or from the vehement force of the uterus, that it is impossible to raise or move the child by the utmost power of the operator: and the state of the case seems to leave the woman without any hope of relief. At this very moment, however, and by these very means the wise and benevolent law of instinct or of nature is interposing to the relief that is despaired of. This wonderful process, though occasionally noticed by earlier writers, and foremost of all perhaps by Schoenheider, in the Copenhagen Transactions †, was first fully illustrated and explained by Dr. Denman, who distinguished it by the name of a SPONTANEOUS EVOLUTION. His explanation is best given in his own words: "As to the manner in which this evolution takes place, I presume that after the long continued

Nature of such evolution explained.

* Gardner, Med. Comment. Vol. v. 307.—Bandelocque, Sect. 1530.—Burns, ut suprà, 303.

† Act. Havn. Tom. II. Art. XXIII.

action of the uterus, the body of the child is brought into such a compacted state, as to receive the full force of every returning action. The body in its doubled state being too large to pass through the pelvis, and the uterus pressing upon its inferior extremities, which are the only parts capable of being moved, the latter are forced gradually lower, making room, as they are pressed down, for the reception of some other part into the cavity of the uterus which they have evacuated, till, the body turning as it were upon its own axis, the breech of the child is expelled, as in an original presentation of that part: and consequently is delivered by nature at the time she least expected it." Dr. J. Hamilton, however, has justly observed that this evolution can only take place where the action of the uterus can produce no exertion on the presenting part, or where that part is so shaped that it cannot be wedged in the pelvis: and he might have added where the woman is in full strength and the uterus is capable of exercising a strong expulsory power. And hence, it is a chance that should never be trusted to or suffered to interfere with the common practice of delivering by the feet wherever this can be accomplished.

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To what circumstances limited.

In all the above cases it is a general rule and one of great importance, to suffer the water of the amnios to accumulate towards the neck of the womb as largely as possible, and to leave the membranes unbroken as long as may be.

In all these cases the waters to accumulate, and the membranes to be left unbroken as long as may be.

A presentation of the FUNIS is another difficulty often of considerable moment in the progress of labour: for it is obvious that by a check to the pulsation, either actually taking place or being greatly endangered in every pain by the violent pressure of the head or of any other part against the mouth of the uterus, or afterwards against the sides of the pelvis, and consequently against the funis itself, the life of the child is in imminent hazard, and without the exercise of considerable skill, may inevitably be lost. If it be possible to return the prolapsed part of the funis round the head as it is descending, or to hook it against the hand or some other part so as to keep it clear

GEN. II. SPEC. IV. Parodynia perversa. Cross-birth. Funis presentation.

of pressure, this ought to be done by all means. But if this be impossible the child must be turned, as soon as turning is practicable from the dilated state of the os internum: or if the head should have reached the pelvis before the accident takes place, the labour must be accelerated by the patient's using her utmost efforts during every pain; and, if she be too much exhausted for concentrating her strength, it must be quickened by the use of the forceps. But if the pulsation in the chord have already ceased, and we have hereby a proof that the child is dead already, the labour is to be suffered to take its natural course.

Head does not always rapidly follow the descent of the body in consequence of exhaustion local or general.

It sometimes happens, however, that after the child is turned and the head does not follow the body so speedily as could be wished from the patient's being greatly exhausted,—and the same frequently occurs in breech cases, in consequence of the protracted length of the labour in this presentation,—there is still a considerable danger to the navel string, from its pressure between the child's head and the pelvis. This should be remedied as much as possible by giving the funis full play between the pains.

Hence the funis in danger:

and the child often born in a state of asphyxy.

But it frequently occurs, in spite of the utmost caution, that the pulsation is suspended, and the child is born in a state of asphyxy, and apparently lifeless.

The common practice to divide the funis immediately, and use stimulant means by the fire.

The common practice in this case is to tie the navel-string as quickly as possible, remove the child from the mother to the warmth of the fire-place, and endeavour to stimulate the lungs into action by breathing forcibly into the mouth while the nostrils are closed. Friction with a warm hand, and with the conjoint aid of some pungent volatile, is at the same time applied actively to the chest; and if this do not succeed the nostrils are attempted to be roused with ammonia, or the fauces with a tea-spoonful of brandy and hot water, to excite sneezing or coughing.

This practice erroneous so far as relates to dividing the funis before respiration.

All this is well; but there is a great and, I am afraid, not unfrequently a fatal error in thus separating the navel string and removing the child from the mother. While it continues united it has two chances of recovery, that of the action of the lungs and that of the re-action of the

umbilical artery. By removing it from the mother we allow it but one chance, and that, in my opinion, the feeblest. The expansion of the lungs is altogether a new process, and, like other new processes, does not always take place with great promptness, even where the child is in full life and vigour, and the umbilical artery in regular pulsation; for it is sometimes half a minute or double this time before the child begins to cry, which is the first proof of its respiring. But the flow of the blood through the umbilical artery is an established habit, and, like all other habits, has a powerful tendency to recur if we give it time and favour; and must derive an additional tendency from the stimulus of the posterior placental vessels which are still pulsating, and operating with a vis à tergo. Of the various cases of asphyxy on birth which I have witnessed, by far the greater number have proved fatal when treated in the former way, and successful when treated in the latter: and the explanation here given will readily account for the difference.

This opinion explained and illustrated.

The PLACENTA itself may, also, form a preternatural presentation, and add much to the difficulty and the danger of labour. We have said that this rises ordinarily from some part of the fundus of the uterus, though it may originate from its sides, or from some other quarter, for there is no quarter of the womb which may not become its source. Hence it occasionally takes its rise more or less over the mouth of the womb; and while this part of the womb continues quiescent, it produces no more inconvenience there than any where else. But the moment labour commences, or even, in the latter months of parturition, when any cause whatever irritates the mouth of the womb, and in any degree puts it upon the stretch, some of the placental vessels must necessarily become ruptured and a hemorrhage ensue. So long as this is small in quantity, and does not frequently return, it will be sufficient to enjoin quiet, a recumbent position, and that the bed be not heated with a profusion of blankets. But if the hemorrhage be considerable, whether before the full time of labour, or on its accession or in any part of it, there is no

Presentation of placenta.

Gen. II. Spec. IV. Parodynia perversa. Cross-birth.

perfect safety but in delivery, and hereby giving the ruptured vessels an opportunity of closing their mouths. The difficulty is less than a young practitioner might at first expect: for he may be sure, from the hemorrhage itself, that the os uteri is both dilated and dilatable, since if this did not give way neither would the vessels which produce the hemorrhage.

Unnatural labours proportionably, but few.

Their respective averages.

Upon the whole, the proportion of unnatural deliveries to natural is but few; and of these it is pleasing also to reflect that the more they are connected with difficulty or danger the more rare is their occurrence: insomuch that comparing the statements of Professor Magele, of Heidelberg *, with those of several of the most eminent accoucheurs of our own country, as Dr. Bland and Dr. Merriman, we may calculate that a breech case may be expected about once in fifty times; a foot case once in eighty; and the more dangerous presentations of the arm, breast, or funis scarcely twice in five hundred births.

SPECIES V.

PARODYNIA AMORPHICA.

Impracticable Labour.

LABOUR IMPEDED BY MIS-CONFIGURATION OF THE FETUS OR OF THE MATERNAL PELVIS.

Gen. II. Spec. V. In natural labour mutual adaptation of the head and the pelvic passage.

In natural labour the size of the head is adapted to the diameter of the pelvis it has to pass through: in some children, indeed, the head is rather larger than in others, or has a difference of shape; and we meet with a like difference in the area of the pelvis: and these circumstances

* Uebersicht der Vorfalle in der G. H. Entbirdungsanstalt zu Heidelberg, &c. 1819.

may prolong the labour, though the expulsory powers of the mother will ultimately triumph over the resistance.

But it unfortunately happens that the head is sometimes so enlarged by monstrosity of structure, hydrops capitis, or some other disease, or that the maternal pelvis is so deformed in its make, that the child cannot pass through the passage, and delivery becomes altogether impracticable.

This mutual adaptation sometimes interfered with by the figure of the child's head, or the maternal pelvis, so much so as to render a passage impracticable.

There is, however, an intermediate state between the natural size of the pelvis with a head of a natural size applied to it, and that of absolute impracticability from the utter inaccordance of the head to the opening; in which, though the most violent and best directed pains of the mother may not be sufficient to produce expulsion, this object may be effected by the assistance of instruments cooperating with the natural efforts.

The proportions sometimes so near as that delivery, though not practicable by natural efforts, may be obtained by the aid of mechanical instruments.

What space of pelvis is absolutely necessary to enable a living child, at its full time, to pass through it, has not been very accurately settled by obstetric writers, some maintaining that this cannot take place where the conjugate diameter is less than two inches and a half, though it may till we reach this degree of narrowness; and others that it cannot take effect under three inches. The difference in the size of the head in different children on their birth, and of the thickness of the soft parts within the pelvis in different women, may easily account for this variation in the rule laid down. It is clear, however, from the acknowledgement of both parties, that if the dimension of the pelvis be much under three inches, delivery cannot be accomplished without the loss of the child: and it is also clear that if the head be much enlarged beyond the natural size from any cause whatever, it cannot pass even through the ordinary dimensions, thus giving us the two following sources or varieties of difficult labour from an amorphous cause.

Necessary diameter of the pelvis.

α A fetû. The fetus deformed by a preternatural magnitude of head, or some other morbid protuberance.

GEN. II. SPEC. V. Parodynia amorphica. Impracticable labour.

β Pelvica. The pelvis contracted in its diameter by natural deformity, or subsequent disease or injury.

The judgement of more importance than a direct measure of the pelvis in every separate case.

It is by no means easy to determine what is the actual measurement of the hollow of the pelvis in a living woman, and particularly during the time of labour: and hence, how useful soever it may be to be acquainted with what ought to be its precise capacity as taken under other circumstances, the judgement must chiefly determine as to the practicability or impracticability of the passage from a calm attention to the individual case at the time, and particularly where the difficulty proceeds from the form of the child rather than from that of the mother. If, in well weighing the circumstances, the question remain doubtful, the patient should be allowed to proceed with her natural exertions alone, or such only in addition as the hands may be able to afford, till the strength is considerably exhausted, and the mind participates in the depression of the body. And if, at this time, as will probably be the case, the head has descended so low as to be in contact with the perinæum, and an ear can be felt, it would be imprudent to delay any longer assisting her with the vectis or the forceps.

Patient to be allowed to proceed naturally in doubtful cases till the powers of body and mind begin to fail, and then a use of the vectis or the forceps.

But the case may not be doubtful, and the passage may be so much contracted as to render all attempts to accomplish delivery by the hands or the ordinary instruments totally ineffectual from the first. In this situation other means must be resorted to, or the mother and the child must both perish, worn out by fatigue, and perhaps rendered gangrenous in the points of contact from irritation and inflammation.

But the case may not admit of a passage for the child, even with instruments.

The means that present themselves to the practitioner on this occasion are the three following: He may reduce the head of the child by the crotchet or perforator. He may, in a small degree, enlarge the diameter of the pelvis by dividing the symphysis pubis. Or, he may make a section through the abdomen into the uterus.

In this case the means to be resorted to are threefold: a reduction of the head: a division of the symphysis: or the Cesarean section.

The first of these methods is designed to save the mo-

ther by a voluntary sacrifice of the child. The two last give a chance to the child, but at an imminent hazard of the mother.

GEN. II. SPEC. V. Parodynia amorphica. Impracticable labour.

Where the difficulty proceeds from a morbid enlargement of the child's head, the question as to which of these three methods of treatment should be adopted, ought not to admit of a moment's delay. The child is, perhaps, dead already, or, if not, it is not likely that it would long survive the deformity it labours under, or live so as to render life a blessing: and the life of a sound woman must not be risked, and still less sacrificed, for the chance of saving an unsound child. The head, therefore, ought to be diminished, and consequently the perforator to be had recourse to.

Reduction of the head by the perforator.

This to be employed without hesitation where the head is morbidly enlarged: and on what grounds.

But there are instances of a deformity of the pelvis so considerable as that the perforator cannot be employed to any advantage: for how much soever the cranium may have been broken down, there may not be breadth enough to extract the child in any way. And this will always be the case where the range of the pelvis is under an inch and a half from the pubis to the sacrum, or on either side. Dr. Osborn asserts that he once succeeded in removing a child by means of the crotchet in a case where the widest side of the pelvis was only an inch and three quarters broad, and not more than two inches long*; which is a capacity so narrow as to throw some doubt upon the accuracy of the measurement in the minds of many practitioners†, and certainly so narrow as to form an unparallelled case in the annals of the obstetric art.

But the pelvis may be so deformed as to render delivery even in this way impracticable.

In situations, therefore, of this kind, some other plan must be pursued even to save the life of the mother; and the only plans that can even be thought of are that of dividing the symphysis of the pubes, and that of the Cesarean section.

Hence some other plan must be pursued.

Towards the latter months of pregnancy there seems to be a disposition in the bones of the pelvis to separate at their symphysis, insomuch that some pregnant women are

* Osborn's Essays, p. 209. † Burn's Princ. of Midwifery, p. 351.

Gen. II. Spec. V. Parodynia anomalica. Impracticable labour.

sensible of a motion at the junction of the bones, especially at that of the ossa pubis*. This has been known to anatomists for some centuries, and about seventy years ago, for the first time, gave rise to a question whether advantage might not be taken of this tendency in cases of pelvic contractions, to enlarge the space by dividing the ossa pubis at their symphysis, and thus obtain the same end as is answered by the Cesarean section, with a considerable diminution of risk. The operation seems first of all to have been proposed by M. Louis of the French Academy of Surgery to Professor Camper of Groningen, who tried it first on a dead female body, and found it would afford space, and next on a living pig, which, for some days afterwards, was incapable either of walking or standing, but in a few weeks perfectly recovered. He was then desirous of trying it upon a young woman condemned to death at Groningen, but did not succeed in his request. Not long afterwards, however, it was performed with complete success by M. Sigault of Paris upon the wife of a soldier who had hitherto borne four children, each of which, from the mother's misformation, was obliged to be extracted piecemeal. The section of the cartilage connecting the ossa pubis enabled the bones to be separated, according to his account, by a chasm of two inches and a half; and yielded a free passage to the child in four minutes and a half. The wife, with her husband and child, a few weeks afterwards, presented themselves to the members of the faculty assembled in their hall. The patient walked steadily and was found to be perfectly recovered†. Mr. Le Roy, who was requested to attend on the occasion, tells us that the same operation was afterwards performed by two other practitioners on two other women, and in both cases with an equally happy termination. He also observes that although, in an unimpregnated state, the bones of the pelvis cannot be made to separate upon a division of the symphysis to a space of more than an inch, which would be insuf-

Division of the symphysis of the ossa pubis, how far applicable.

This operation, when first proposed,

and by whom.

By whom first tried.

Success of M. Sigault.

History of his first case.

* Denman, Pract. of Midwifery, p. 46, 446.

† Med. Comm. Edin. Vol. v. p. 214.

ficient for the purpose proposed, the additional softness and flaccidity which take place during pregnancy, as well in the bones and cartilages as in the muscles, is so considerable, that a separation of two inches and a half may be easily effected in labour, and was effected in the above cases, while the same bistoury that divided the soft parts, easily also divided the cartilage*. In various other parts of the Continent, and especially at Mons and in Holland it has been repeated with complete emancipation both to the child and mother. Dr. J. H. Myers, who witnessed it at Paris, speaks of it in the highest terms of commendation. He says that the length of the incision does not exceed three inches, and that the whole operation is over in less than five minutes: while in the Cesarean operation the wound is necessarily more than nine inches long, the uterus is divided, and the surrounding viscera are uncovered. "I have seen", says Dr. Myers, "the operation twice performed in this capital with every possible success. The last patient, while I am writing, is in the room, coming to show herself in justice to her operator. It is only eighteen days since the operation was performed, and she is in perfect health, and by no means injured by it." †

Gen. II. Spec. V. Parodynia anaperphica. Impracticable labour.

Extent to which the bones will separate in pregnancy compared with their power at other times.

Operation since performed in various other parts.

Account of the operation given by Myers.

The operation, however, has been decried, and, in some instances, has certainly failed; but there appears to be some doubt whether, in several of these cases at least, if not in all, it was conducted with a sufficient degree of dexterity and skill: for when we are told by one operator that, after the division of the symphysis he could not effect an opening of much more than a finger's breadth, and by another that the utmost extent of the hiatus was not more than a inch and a half, and compare these remarks with the following assertion of Dr. Myers upon this very point, it is difficult to come to any other conclusion. "The moment", says he, "the division is made, there is an enlargement of the pelvis, I venture to say, to

Operation decried from occasional failure: and sometimes performed unskilfully.

* Recherches Historiques et Pratiques sur la Section de la Symphyse du Pubes, &c. Paris. 8vo. 1778.

† Edin. Med. Comment. Vol. VII. p. 458.

Gen. II. Spec. V. Parodynia amorphia. Impracticable labour.

any extent desired: the last I saw was three inches, accurately measured by an instrument called *peloimetre*, contrived by M. Trainel." To which we may add that M. de Lambon performed the operation twice on the same patient; in the first instance without injury to the mother, and in the second with success to both mother and child *.

Performed by Lambon twice on the same patient.

Undue prejudice against the operation in our own country.

After these decisive facts in its favour, to which the reader may add others from the volume of Nosology, I cannot but conceive that the prejudice against it, in our own country, has been carried too far. One trial alone has been made amongst ourselves, and that with an unsuccessful issue. But the chief opposition to it seems to have proceeded from the discountenance of Dr. Denman, added to certain experiments made in relation to it by Dr. William Hunter, which do not seem to have been conducted under circumstances that can fairly call in question the truth of the preceding statements.

Whence its origin.

Character of the operation as given by Denman:

"Immediately", says Dr. Denman, "after the accounts of the operation were brought into this country, wishing, as a matter of duty, to understand the ground of the subject, I had a conference with the late Mr. John Hunter, in which we considered its first principle, its safety; and after the most serious consideration it was agreed that, if the utility could be proved, there appeared from the structure of the parts, or from the injury they were likely to sustain by the mere section of the symphysis, no sufficient objection against performing it. Of its real utility it was, however, impossible to decide before many experiments had been made on the DEAD body, to ascertain the degree of enlargement of the capacity of the pelvis, well-formed or distorted, which would be thereby obtained. Such experiments were soon made: and their result published by the late Dr. Hunter, and these proved on the whole that, in extreme or great degrees of distortion of the pelvis, the advantage to be gained was wholly insufficient to allow the head of a child to pass without lessening its

and experiments to prove its range and safety.

* Leake's Practical Observations on the Acute Diseases of Women. 8vo.

bulk: and in small degrees of distortion that the operation was unnecessary, such cases admitting of relief by less desperate methods. They proved, moreover, that irreparable injury would be done by attempts to increase the common advantages gained by the section of the symphysis by straining or tearing asunder the ligaments which connect the ossa innominata to the sacrum, and to the soft parts contained in the pelvis, particularly to the bladder."*

GEN. II. SPEC. V. Parodynia amorphica. Impracticable labour.

Now it did not require these experiments to prove that this operation, or almost any other, would become mischievous if unskilfully performed, but surely it was something too much to endeavour to set aside the facts and results known to have taken place in very numerous instances in the *living* body, and to call in question the veracity of those who made them and those who witnessed them, by facts and results made merely on the *dead* body, without one single experiment on the body while alive and in the peculiar circumstances under which alone it is admitted that the facts and results contended for could possibly take place.

Examination of the above experiments.

In what respects inconclusive.

Upon the whole it is allowed in the passage just quoted, as the concurrent opinion of Dr. Denman himself, Mr. John Hunter, and apparently Dr. William Hunter, and this too after "the most serious consideration,"—that "there appears from the structure of the parts or from the injury they are likely to sustain, by the mere section of the symphysis, no sufficient objection against performing the operation." That it will answer in every degree of a contracted pelvis was never asserted by its most sanguine advocates, but only in cases where the constriction was somewhat too considerable to allow of the extraction of the child by the forceps. And lastly, it is after all admitted by Dr. Denman himself, that where the life of a child is of more than ordinary importance from public or other considerations, and the mother who is in labour with it possesses a pelvis so deformed and contracted, that it

General result.

* Denman's Practice, &c. 447.

GEN. II. SPEC. V. Parodynia amorphica. Impracticable labour.

cannot pass through the passage in its present state, "there the section of the symphysis of the ossa pubis might be proposed and performed,—being less horrid to the woman than the Cesarean operation, and instead of adding to the danger, giving some chance of preserving the life of the child."*

Division of the symphysis unavailing when the passage is extremely narrow.

It is perfectly clear, however, that, be the advantages of dividing the symphysis what they may when the pelvis is under certain states of deformity, it is an operation that can never be of any avail where the passage is so narrow that the child cannot be brought away piece-meal even by the use of the perforator.

In which case the patient must be left,

And in such circumstances the only alternative is to leave the patient to nature, in the slender and desperate hope that the pains may gradually wear away as the parts become habituated to the irritation, and the child, as in many cases of extra-uterine fetation, be thrown out in detached fragments by an abscess;

or recourse had to the Cesarean operation.

or to have recourse to what has been called the CESAREAN OPERATION, and deliver by making a section into the uterus through the abdomen.

Maternal love, or a sense of duty has often prevailed on women to submit to this operation: and from a remote period of the world.

The love of offspring, or a sense of duty, has been so prevalent in some women as to induce them to submit to this severe trial in cases where the pelvis has by no means been so straitened as we are now contemplating. And these motives not being confined to any particular age, the operation is of considerable antiquity and is particularly noticed by the elder Pliny, who tells us that the elder Scipio Africanus, and the first of the Cesars were brought into the world in this manner, and adds, that the name of Cesar was hence derived "à *cæso* matris utero".†

Scipio Africanus and the first of the Cesars thus born.

Revived by lay hands in recent times.

In recent times, one of the earliest cases in which it was submitted to was that of the wife of a cattle-gelder at Siegenhausen in Germany in the beginning of the sixteenth century.

Examples in Germany.

The child it seems was, from its size, supposed to be incapable of being expelled in the natural way, and the operation was performed by the cattle-gelder himself. Barchin, in his Appendix to Rousset, who was a warm supporter of the practice, and wrote in favour of it in 1581,

* Denman, ut supr. 449. † Hist. Nat. Lib. VII. cap. ix.

tells us that this woman did well and bore several children afterwards in the natural way. There are a few other instances related of its having been executed by lay hands, and with equal success; particularly one performed in Ireland by an uninstructed midwife whose instrument was a razor. The case is related by Mr. Duncan Stewart in the Edinburgh Medical Essays *, who saw the woman a few days after the operation. She was well in about a month. Among regular practitioners, however, it has been generally opposed on account of its very doubtful result, from the time of Paré and Guillemeau, who warmly resisted its employment. Dr. Hull not long since made a collection of all the cases in which the operation had been performed both at home and abroad, and calculated them at 231, of which 139, being considerably more than half, had proved successful †. The German collections, indeed, give various examples of its having been repeated several times on the same person: and M. Trestan narrates the extraordinary history of one woman who had submitted to it not fewer than seven times ‡. One of the latest examples is, I believe, the case furnished by Dr. Locker of Zurich, and published in a late volume of the Transactions of the Medico-Chirurgical Society; in which the mother and child were both happily preserved §.

Gen. II. Spec. V. Parodynia amorphica., Impracticable labour. in Ireland.

Result upon the whole very doubtful.

Proportional fatality.

Has been performed several times on the same person.

Case of late occurrence.

Under this view of the subject it is singular to observe the general fatality, at least to the mother, with which the Cesarean section has been followed in our own country. "There are, I think," says Mr. Burns, "histories of twenty cases where this operation has been performed in Britain: out of these only ONE woman has been saved, but ten children have been preserved." ‖

Has proved peculiarly fatal in our own country.

Exemplified.

At Edinburgh, Mr. Hamilton remarks ¶, that it had been performed five times at the date of his publication: and that in no instance had the patient the good fortune

Want of success how explained by Hamilton.

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* Vol. v. p. 360.
† Translation of M. Bandeloque's Memoir, p. 233.
‡ Journ. de Medicine, Tom. xxxvi. p. 69.
§ Vol. ix. p. 11. ‖ Princip. ut supr. p. 348.
¶ Elements of the Practice of Midwifery, 8vo.

GEN. II. SPEC. V. Parodynia amorphica. Impracticable labour.

to survive it many days. Of the last case he was an eye-witness, and it was only resorted to after every other means had proved ineffectual: the child was saved but the mother survived only six and twenty hours. This ingenious writer enters with great pertinence into the question to what cause so general a failure is to be ascribed. And while he admits that nervous or uterine irritation from cutting, internal hemorrhage, or an extravasation into the cavity of the abdomen may each have an influence; he is disposed to think that its unsuccess is principally to be imputed to the effect which access of air is well known to have on viscera exposed and in a state of irritation. Dr. Monro repeatedly found that, in making even a large aperture by incision into the abdomen of animals, if the wound be quickly closed the animal readily recovers: but that if the viscera be exposed for only a few minutes to the air, severe pains and fatal convulsions ensue. And hence Mr. Hamilton most warmly exhorts that, in performing the Cesarean operation, the bowels be denuded as little as possible, and the wound be closed with the utmost expedition.

The explanation hardly satisfactory; and the want of success ascribed to another cause.

This answer, however, is hardly satisfactory: and I am rather inclined to think that the comparative want of success at home, is owing to the greater reluctance in performing the operation than seems to be manifested in France and Germany; in consequence of which it is rarely determined upon till the woman is too far exhausted, and has an insufficiency of vigour to enable the wounded parts to assume a healing condition. In most of the cases recorded, there does not seem to have been any deficiency of skill; and particularly in that which occurred about five and thirty years since, and was attended by Mr. John Hunter and Dr. Ford *, and hence the unfavourable issue must be resolved into some other cause.

Premature delivery: its great benefit in these cases.

It is happy for the world, and peculiarly so for those who are possessed of a contracted pelvis, and in many cases without knowing it till they are in labour, that a far

* Denman, ut supr. p. 463.

safer, and less painful operation may be had recourse to, where the deformity is known in due time, I mean that of A PREMATURE DELIVERY. "A great number of instances have occurred", says Dr. Denman, "of women so formed that it was not possible for them to bring forth a living child at the termination of nine months who have, in my own practice, been blessed with living children by the accidental coming on of labour, when they were only seven months advanced in their pregnancy, or several weeks before their due time. But the first account of any artificial method of bringing on premature labour was given to me by Dr. C. Kelly. He informed me that about the year 1756, there was a consultation of the most eminent men at that time in London to consider of the moral rectitude of, and advantages which might be expected from, this practice; which met with their general approbation. The first case in which it was deemed necessary and proper fell under the care of the late Dr. Macauley, and it terminated successfully. The patient was the wife of a linen-draper in the Strand. Dr. Kelly informed me that he himself had practised it; and, among other instances, mentioned that he had performed this operation three times upon the same woman, and twice the children had been born living.

Gen. II. Spec. V. Parodynia amorphica. Impracticable labour. Illustrated.

Origin of the practice in London.

Success in the first case.

"A lady of rank", continues the same writer, "who had been married many years, was soon after her marriage delivered of a living child in the beginning of the eighth month of her pregnancy. She had afterwards four children at the full time, all of which were, after very difficult labours, born dead. She applied in her next pregnancy to Dr. Savage, whom I met in consultation. By some accounts she had received, she was prepared for this operation, to which she submitted with great resolution. The membranes were accordingly ruptured, and the waters discharged, early in the eighth month of her pregnancy. On the following day she had a rigor, succeeded by heat and other symptoms of fever which very much alarmed us for the event. On the third day, however, the pains of labour came on, and she was, after a

More striking success on a subsequent trial.

Gen. II. Spec. V. Parodynia amorphica. Impracticable labour.

short time, delivered, to the great comfort and satisfaction of herself and friends of a small but perfectly healthy child, which is at this time nearly of the same size it would have been, had it been born at the full period of utero-gestation; and it has lived to the state of manhood. In a subsequent pregnancy the same method was pursued, but whether the child was of larger size, or the pelvis was become smaller, whether there was any mistake in the reckoning, or whether the child fell into any untoward position, I could not discover, but it was still-born though the labour did not continue longer than six hours. Yet in a third trial the child was born living and healthy, and she recovered without any unusual inconvenience or trouble."*

Interval between rupturing the membranes and the accession of the labour-pains varies in different individuals.

It is only necessary to add that the time in which labour-pains will come on after thus rupturing the membranes and discharging the waters, is uncertain, and appears to depend much on the irritability of the uterus. It is sometimes delayed, as in the first trial in the case just noticed, for three days, but the labour has sometimes, also, been found to commence within a few hours.

SPECIES VI.

PARODYNIA PLURALIS.

Multiparous Labour.

LABOUR COMPLICATED BY A PLURALITY OF CHILDREN.

Gen. II. Spec. VI. Fertility dependent on various circumstances.

THE fertility of women seems to depend upon various circumstances, partly, perhaps, the extent or resources of the ovaria, partly constitutional warmth of orgasm, and

* Epist. App. ad Strauss de fœtu. Mussipont. p. 298.

partly the adaptation of the male semen to the organisation of the respective female. Eisenmenger gives us the history of a woman who produced fifty-one children*: and sometimes the fertility seems to pass from generation to generation, in both sexes, though it must be always liable to some variation from the constitution of the family that is married into. I have in my own family at the time of writing, a young female servant whose mother bore twenty-three children, and brought them up with so much success, that at the time of her mother's death, she was the youngest of nineteen then living: and her eldest brother has fourteen children at present, all of whom I believe are in health.

Gen. II. Suec. VI. Paradoxia pluralis. Multiparous labour.

Fifty-one children produced by one woman.

Constitutional fertility hereditary.

But while some women produce thus rapidly in single succession, there are others that are multiparient, and bring forth occasionally two or even three at a time, more than one ovum being detached by the orgastic shock. Three at a time is not common: I have met with but one instance of it in which the children were all alive and likely to live; and one instance only occurred to Dr. Denman in the course of upwards of thirty years' practice. Four have occasionally but very rarely been brought forth together, and there are a few wonderful stories of five, but which rest on no well-authenticated testimony.

Multiplicate fertility. Three at a birth.

Sometimes four.

Five reported, but upon doubtful authority.

Twins are mostly produced at a common birth, but owing to the incidental death of one of them while the other continues alive, there is sometimes a material difference in the time of their expulsion, and consequently, therefore, in their bulk or degree of maturity, giving us the two following varieties:

Twins mostly produced at a common birth: but occasionally at different periods.

α Congruens. Congruous twinning.	Of equal or nearly equal growth, and produced at a common birth.
β Incongruens. Incongruous twinning.	Of unequal growth, and produced at different births.

In CONGRUOUS TWINNING or ordinary twin cases, in

α P. pluralis congrua. Congruous twinning.

* Epist. App. ad Strauss de fœtu. Mussipont. p. 228.

Gen. II. Gen. VI. a P. plurafis congrua. Congruous twinning.

which there is no great disparity of size between the two, on the birth of the one, it can be pretty easily ascertained that another is still in the womb by applying the hand to the abdomen; for the limbs, and, if the child be alive, its movements, may generally be felt very distinctly, except, indeed, where an ascites is present, and the practitioner must then have recourse to other tokens.

No precise signs by which pregnancy with twins can be ascertained.

There are no precise signs by which a woman or her attendant can determine whether she be pregnant of twins or not. Inequalities in the prominence of the abdomen, peculiarities of internal sensation or motion, slowness in the progress of a labour, have been advanced as signs; but they belong as frequently to the uniparient as to the multiparient, and hence are unentitled to attention.

Priority of birth in twins dependent on convenience of position for birth.

The claim to priority of birth in a twin case is dependent, not on superiority of strength, or any other endowment, but on a closer proximity to the mouth of the uterus alone, and, consequently, on a greater convenience of position. Though when, on the birth of twins, one is found small and emaciated, and the other plump and strong, we have some ground for apprehending that the vigorous child has absorbed the greater part of the nutriment afforded by the mother, as we find not unfrequently in plants shooting from the same spot of earth.

General rules of morbid labour of single children govern in twin cases: commonly some interval between the expulsion of the one and the other. Has extended to a day or two: to ten days: to seventeen. But this should not be allowed.

The general rules that govern in morbid labour of individual children, govern equally in morbid labour of twins. The second child is usually delivered with comparatively few pains and little inconvenience, as the parts have been sufficiently dilated by the passage of the first; and, although there is commonly some interval between the termination of the one and the commencement of the other struggle, it is not often that this interval exceeds half an hour or an hour. It has, indeed, in a few instances extended to whole days; in one instance to ten *, and in another to seventeen days †. But these are very uncommon cases: and as mischief may possibly happen to the

* Hist. de l'Acad. des Sciences, 1751, p. 107.

† De Boset in Verhandelingen van Harlem, XII. App. No. 6.

womb, and to the system at large from a long protraction of uterine irritation, it is now the practice to deliver the second child by art, after having waited four or five hours in vain for a return of expulsory exertions.

GEN. II. SPEC. VI. α P. pluralis congrua. Congruous twinning.

In INCONGRUOUS TWINNING we meet, in different cases, with every possible diversity in perfection of form, and term of expulsion between the co-offspring. Nor is this to be wondered at in either respect. We have already seen that a single fetus may die during any period of parturition from a variety of causes; and hence we may readily conjecture that one of the twins may die at any period, while the other still thrives and remains unaffected. This twin may remain in the womb, and both be expelled together at the full time. But it may happen, also, from the peculiar irritation of the uterus generally, or the peculiar position of the dead fetus near the cervix, that this organ may be so far stimulated by the death, and corrupt state of the fetal corse and its membranes, as to expel it from the body, while the living child receives no injury, and continues to thrive, and is maturely delivered at its proper time.

β P. pluralis incongrua. Incongruous twinning.

Physiology and explanation: one may thrive while the other is dead: and the first be expelled while the second remains its full time.

In the latter case, where the dead fetus has been discharged in the second or third month of pregnancy, the mother, not knowing herself to have been pregnant with twins, has been erroneously conceived, on the arrival of the second birth, to have produced a perfect child within the short term of six or seven months.

Hence the mother on the birth of the second may imagine she has not been more than six or seven months pregnant.

In the former case, or that in which the dead fetus remains quiet in the womb through the remaining term of pregnancy and both are discharged at a common birth, an opinion equally erroneous was formerly entertained in order to account for the apparent difference of the two in growth and size: for it was supposed that the dead and puny, and apparently premature fetus, was conceived some months subsequently to the perfect and vigorous child, and hence had not time to reach it in size and perfection: and to this supposed subsequent conception was given the name of SUPERFETATION.

These facts formerly accounted for by the doctrine of superfetation.

We have reason to believe that such a process does

Superfetation occasionally

Gen. II. Sect. VI. β P. plurilis incongrua. Incongruous twinning.

occasionally take place in some quadrupeds whose wombs are so formed as to allow of it: but we have already observed in the preliminary Proem to the present Class, as also in the introductory observations to the present Order, that, in women, from the moment of conception, an efflorescent membrane is formed which lines the whole cavity of the uterus, and acts as a septum to the ascent of any subsequent tide of male semen; not to say further that the os uteri itself is so plugged up by the secretion of a viscid mucus at the time, as to prevent any communication between this organ and the vagina till the period of pregnancy is completed. And hence the doctrine of superfetation in women, excepting under very particular circumstances, has deservedly sunk into general disrepute*.

may occur in quadrupeds, but rarely in women.

Explanation.

Hence this doctrine now in disrepute.

Under what circumstances it has overruled.

For it is possible, however, as we have already observed, for a second fetation to take place by an additional connexion, within a few hours after the first, and before the formation of the occluding membrane. But in this case, the progress of the twins are parallel, and their birth in immediate succession.

Example of incongruous fetation.

The cases of this kind, and formerly ascribed to the exploded cause, are by no means uncommon. Dr. Maton has given a very decided one in the Medical Transactions, containing the history of a lady delivered at Palermo of a male child in November 1807, and again, scarcely three months afterwards, in February 1808, of another male infant, "completely formed".† The proportion or powers of the first child are not sufficiently noticed: but we are told that both were born alive; that the elder died when nine days old "without any apparent cause"; and that the younger died also, but after a longer term.

Further illustrated.

In Henchel we have an account of a minute‡ and a mature fetus born at the same time: and in the Transactions of the Medico-Chirurgical Society, a similar account by Mr. Chapman, with the exception of the time, which

* Waldschmied, Dissert. de Superfœtatione falsò prætensâ. Hanb. 1727.

† Vol. IV. Art. XII.

‡ Neue Medicinische und Chirurgische Anmerkungen, B. II.

varied considerably: the dead and minute fetus, apparently not more than three or four months old, having in this case been born in October 1816, and the twin, a full-grown child, not till December, just two months afterwards*.

Gen. II. Spec. VI. β P. pluralis incongrua. Incongruous twinning.

In this last instance, however, there can be no doubt that the aborted fetus had remained quiet in the uterus for some months after its death before it was expelled; which in truth is the only way of reconciling its apparent age and size of not more than three or four months at the time of its expulsion, with the full time or nine months of the mother, completed only two months afterwards.

Examined and explained.

Nor is a quiet and undisturbing continuance in the uterus after the death of the fetus by any means uncommon, whether the offspring be single or double. We have already given examples of an interval of ten, and even seventeen days, in the case of twins born equally of full size. But where the growth has been discrepant, and the dead fetus has remained behind unsuspected, it has sometimes been several months before expulsion has taken place. Ruyset gives a case in which it was delayed a twelvemonth after the apparent term of its death, and even then discharged without corruption†: and some of the foreign collections have instances that more than double this time‡.

Undisturbing continuance of a fetus in the womb after death, not uncommon.

Has continued a twelvemonth: and double this time.

The present author was once engaged in consultation upon the case of a lady in Bedford Row, who had miscarried of a fetus under three months old, which there was every reason to believe died four months antecedently; as at that time the mother had been attacked with a flooding and rigors, had had various subsequent uterine hemorrhages, and had never been able to quit a recumbent position without producing some return of the bleeding.

Illustrative fact.

* Vol. IX. Art. p. 195. † Thesaur. Omnium Mat.
‡ Neue Samml. Wahrnehmungen. Band. IV. p. 241.

SPECIES VII.

PARODYNIA SECUNDARIA.

Sequential Labour.

DISEASED ACTION, OR DISTURBANCE SUCCEEDING DELIVERY.

Gen. II. Spec. VII. In ordinary child-birth no difficulty after the expulsion of the fetus: but from particular circumstances great difficulty and distress.

In ordinary child-birth the pains of labour may be said to cease with the expulsion of the fetus: since though sequential, or after-pains as they are ordinarily called, are not uncommon for a day or two, and are useful in expelling the placenta and its membranes, and a few large coagula of blood that have formed in the uterus, these last are neither violent nor by any means frequent. It sometimes happens, however, that there is almost as much trouble, and as much pain, and as much danger after the birth of the child as antecedently, so that the labour itself may be fairly said to be protracted into this secondary stage, which offers the following varieties of morbid affection:

α Retentiva.	Retention of the secundines.
β Dolorosa.	Violent after-pains.
γ Hæmorrhagica.	Violent hemorrhage or flooding.
δ Lochialis.	Inadequate lochial discharge.

α P. secundaria retentiva. Retention of the secundines.

In about ten minutes or a quarter of an hour after the birth of the child the uterus recovers its action, and again exerts itself, though with less force, and consequently slighter pain, to expel what is commonly called the after-birth, consisting of the placenta and its membranes; which, in common cases, are easily separated and thrown off from the sides of the organ. The instinctive or remedial power of nature is just as competent of itself to do this as to expel the child; but, as unquestionable benefit is found from

Usually expelled by natural efforts:

but may generally be as-

assisting in the expulsion in the latter case, a like degree of benefit is also found in the former; and the practitioner by taking hold of the funis, and gently pulling it during the action of a pain, will, in most cases, be sure of expediting the passage of the placenta, without running the least risk of rudely tearing it from the sides of the uterus, and exciting a hemorrhage.

Gen. II. Spec. VII. a P. secundaria retentiva. Retention of the secundines. Assisted by moving the funis.

It will sometimes however be found that the funis instead of being fully inserted at its upper extremity into the body of the placenta, originates alone from a few of its vessels, and that from an incautious tug it gives way, and is drawn down by itself, leaving the placenta behind; and consequently putting it entirely out of the practitioner's power to render any collateral assistance.

Funis sometimes gives way and leaves the placenta behind.

It also happens, not unfrequently, from the general exhaustion of the system, or the local exhaustion and torpitude of the uterus, that no expulsory pains of any kind follow at the ordinary time, or even for a long period afterwards, and consequently that the placenta is still lying unseparated in the uterus.

And sometimes no pains to separate and expel the placenta.

On a trial instituted by Dr. W. Hunter, and Dr. Sandys, in the Middlesex Hospital, it was found in one case, that the placenta left to the action of the uterus alone, was not rejected till twenty-four hours after delivery: and as no ill consequences followed on this experiment, it became soon afterwards a practice with many in this metropolis, as it had long before been with still more on the Continent, to pay no attention to the placenta, and to leave it to take its course. Great mischief however, has been, in many cases found to ensue, from this kind of quietism: for, where there is great exhaustion, a sufficiency of natural exertion does not in numerous instances return for three or four days afterwards, and sometimes even longer: while the placenta, by remaining in the uterus, keeps up a febrile irritation and, what is infinitely worse, by being in many instances partly though not wholly detached, and rendered a dead as well as a foreign substance, the detached part putrifies, and produces a fetor through the whole atmo-

Experiment as to the effect of leaving the placenta to nature.

In this instance no mischief:

and was hence a practice with many at home, as it had long been abroad.

But great evil has often happened, and of various kinds.

Gen. II. Spec. VII. a P. secundaria retentiva.

sphere of the chamber sufficient of itself to render the patient sick, and faint, and feverish, if it do not occasion a genuine typhus.

Retention of the secundines.

I was lately requested to attend in consultation upon a case of this kind. The patient had had a very difficult labour, and after two or three days of severe suffering was delivered by the use of the crotchet. She was afterwards for a long time in a state of syncope, and the placenta was suffered to remain without any attempt to remove it. She had no expulsory pains for three days, but very great soreness and some degree of laceration in the soft parts, with such a torpitude of the bladder that the water was obliged to be drawn off daily. In about eight and forty hours, she had a hot dry skin, brown furred tongue, with a quick, small pulse, slight delirium, and occasional shiverings. It was in this state I was requested to see her. The room which was small, was insupportable from its stench, notwithstanding all the pains taken to maintain cleanliness, and to cover the fetor by pungent odours. I strenuously advised that the placenta should be instantly removed, but was answered that gangrene had already begun, the patient would certainly die, and as certainly sink under the very attempt to bring it away, so that the operator would fall under the charge of having killed her. My reply was, that she would assuredly die if it were not removed, but I was not so certain that she would if it were; that in my judgement the fetor rather proceeded from the placenta itself than from the ichorous discharge about the vagina, and gave a token of a very extensive separation, though the patient wanted power to expel it from her body. And I could not avoid adding that if none of the gentlemen present (we made four in all) would venture upon the task I would take the risk upon myself, though I had long declined the practice, and give the patient this only chance of a recovery. This declaration inspirited the rest: the operation was determined upon, the placenta, as I suspected, was found nearly separated throughout, and half advanced into the vagina, and was removed without

Striking case in illustration.

Patient in great danger.

difficulty. By the use of cinchona and the mineral acids, with a nutritive regimen, the patient gradually recovered, and is now in a state of perfect health.

Gen. II. Spec. VII. α P. secundinæ retentiva.

Retention of the secundines.

The modern practice, therefore, of not trusting the placenta to the mere powers of nature, when those powers are exhausted or inoperative, is founded upon a principle of the soundest observation. Four or five hours is the utmost time now usually allowed, and if it be retained beyond this period, the operator interferes, brings it away by the funis, if the uterus will hereby become sufficiently stimulated, and if not, or the funis be broken, by cautiously introducing his hand into the uterus, and peeling the placenta gradually from its walls by the action of his fingers.

The placenta removed, and the patient recovered.

Hence the removal of the placenta not to be left to the powers of nature when these are exhausted.

If the uterus, instead of contracting at all at its fundus, should contract irregularly and transversely so as to form what has been called an HOUR-GLASS contraction, the removal of the placenta should take place before this time.

Time to be allowed before its removal.

Hour-glass contraction of the uterus.

In some irritable habits it is sometimes found on the contrary that AFTER-PAINS, instead of ceasing gradually, continue almost without ceasing, and with nearly as great violence as the pains of labour itself; and this for many hours after the extraction of the placenta.

β P. secundaria dolorosa.

Violent after-pains.

If such after-pains follow close upon the labour, they proceed from a morbid irritation and spasmodic tendency of the uterus alone; and the best remedy is an anodyne liniment applied to the abdomen, with an active dose of laudanum, which last must be repeated as soon as the first dose has lost its effect, the bowels in the mean while being kept regularly open. If such violent pains do not take place till some hours after the evacuation of the placenta, or even the next day, it is highly probable that some large cake of coagulated blood has formed in the uterus, and become a source of irritation. This may often be hooked out by a finger or two introduced for such purpose, and the organ be rendered easy: if not, an opiate will here be as necessary as in the preceding case.

How to be distinguished.

Treatment.

Hæmorrhage or FLOODING after delivery is another evil

Gen. II. Spec. VII. ♀ P. secundaria hæmorrhagia. Flooding. Treatment.

which the practitioner in the obstetric art is not unfrequently called upon to combat. This is sometimes produced by pulling too forcibly at the umbilical chord, and separating the placenta from the walls of the uterus before its vessels have sufficiently contracted: but the most common cause is an exhausted state of the uterine vessels themselves, and a consequent inability to contract their mouths, so that the blood flows through them without resistance.

Profuse discharge of blood at first without weakening, explained.

The uterus is, at this time, so stored with blood of its own, that a prodigious rush will often flow from it without producing syncope or any serious evil upon the general system: for it is only till it has lost its own proper supply, and begins to draw upon the corporeal vessels for a recruit, that any alarming impression is perceived. Yet from the first moment the attendant should be on his guard, and should have recourse to the means already laid down under flooding occurring in the latter months of pregnancy *. From the very open state in the present case of the mouths of all the uterine vessels that have anastomosed with the vagina, the flooding is here, however, upon some occasions, far more profuse and dangerous than at any other period, so that a woman has sometimes been carried off in the course of ten minutes, with a sudden faintness, sinking of the pulse, and wildness of the eyes that is most heart-rending. And, in such a situation, as the living powers are failing apace, and must be supported at all adventures, while cold and astringent applications are still applied to the affected region, we must have recourse to the warmest, the most active, and most diffusible cordials, as Madeira wine or brandy itself in an undiluted state: and if we succeed in rousing the frame from its deadly apathy, we must drop them by degrees, or exchange them for food of a rich and nutritive, but less stimulant description.

Yet great and dangerous exhaustion afterwards.

Patient sometimes dies in a few minutes.

In extreme exhaustion of the living power cordials of the most stimulant kind necessary.

When the discharge of blood from the uterus ceases,

* Vol. IV. p. 176. Gen. I. Spec. II. Paracyesis uterina hæmorrhagica; and compare with Vol. III. Cl. III. Ord. IV. Gen. II. Spec. II. Hæmorrhagia atonica uteri.

it is succeeded by a fluid of a different appearance which is commonly called LOCHIA (λόχια), a term employed by Dioscorides in the sense of secundæ, or the materials evacuated by a lying-in woman after the birth of the child. The nature of this discharge does not seem to have been very fully explained by pathologists. The numerous and expanded blood-vessels of the uterus contract gradually, and particularly in their mouths or outlets; by which means the fluid they contain, and which is not entirely evacuated by the vagina, is thrown back on the system with so much moderation as to produce no serious evil, and its stimulus is chiefly directed to the breasts. As the mouths of these vessels progressively collapse, the finer part of the blood only, or at least with not more than a small proportion of the red particles, issues from them, and in smaller abundance, and hence the discharge appears less in quantity and of a more diluted redness. By intermixing with the oxygene of the air which has a free admission to the sexual organs, this red, as in the case of venous blood, assumes a purple or Modena hue: and as this hue becomes blended with the yellowish tinge of the serum, it necessarily changes to greenish, which is the colour of the lochial discharge before its cessation.

GEN. II. SPEC. VII. ♀ P. secundaria lochialis.

Inadequate lochial discharge.

Origin of the term.

Nature of the discharge explained.

Its dilute state and change of colour accounted for.

While this discharge issues in a due proportion to the demand of the idiosyncrasy, for the quantity differs considerably in different women, there is little fever or irritation, and we have no ill consequences to apprehend: but the mouths of these vessels may be irritated by various causes, as catching cold, violent emotions of the mind, the use of too stimulant a diet, or the want of a sympathetic action in the breasts; and the result, under different circumstances, is of a directly opposite kind. If there be no spasm hereby induced on the mouths of the closing vessels, they will throw forth a morbid superabundance of serous fluid, without running perhaps into a hemorrhage, or opening sufficiently to discharge red blood, and the patient will become greatly exhausted and

No disquietude while this issues in moderate quantity: but the secretion may be rendered morbid by excess;

GEN. II. SPEC. VII. ϐ P. secundaria lochialis.

weakened, have a sense of a prolapse of the uterus, and be peculiarly dispirited in her mind. If, on the contrary, which is more frequently the case, the mouths of the uterine vessels become suddenly and spasmodically closed in consequence of the superinduced irritation, there will be a total and abrupt suppression of the lochia, a sense of great weight and pain will be perceived in the uterus and the whole region of the pubes, a considerable degree of fever will ensue, and the patient will be in danger of a puerperal typhus.

Inadequate lochial discharge.

or suppression.

Remedial means.

These are the evils which result from a disturbance of the balance of the lochial discharge. In attempting to remedy them the exciting cause should, in the first place, be removed as far as this is capable of being accomplished. After which, in the former case, the strength is to be sustained by unirritant tonics, astringents, and a plain nutritive diet: and in the latter, the spasmodic pain, and heat, and other febrile symptoms are to be subdued by antispasmodics and relaxants, particularly camphor, with small doses of ipecacuan or antimony. The neutral salts have also in this case proved serviceable, which have the farther advantage of opening and cooling the bowels. It will likewise be found highly useful to foment the abdomen with flannels wrung out in hot water, or, which is far better, to bind a flannel swathe wrung out in hot water, in the same manner, round the whole of the abdomen and the back, and to encircle it with a band of folded linen to prevent it from wetting the sheets, and to let it remain on like a cataplasm, till it becomes dry by evaporation.

Occasionally no lochial discharge in healthy labours.

It should not be forgotten, however, that in some women who have healthy labours, there is no lochial discharge whatever, the blood-vessels of the uterus contracting suddenly and closely as soon as the red blood ceases to flow. I have already pointed out one example of this kind that occurred to Professor Frank, even after a third natural delivery; the patient, moreover, having been from a girl as destitute of menstruation as after-

wards of lochia: yet her health was in no respect interfered with *.

GEN. II. SPEC. VII. Parodynia secundaria. Sequential labour. Treatment.

In all the diseases here referred to, cleanliness and purity of air are of the utmost importance; without these, no plan whatever can succeed: and with them, no other plan is often wanted. They are, moreover, of as much moment to the infant as to the mother. It is a striking fact that in the space of four years, ending in 1784, there died in the Lying-in Hospital of Dublin, at that time a badly ventilated house, 2944 children out of 7650: though after the ventilation was improved, the deaths within a like period, and from a like number, amounted to not more than 279.

Great importance of cleanliness and pure air.

Strikingly exemplified.

* De Cur. Hom. Morb. Epit. Tom. VI. Lib. VI. Pars III. 8vo. Viennæ, 1824.

GENUS III.

ECCYESIS.

Extra-uterine Fetation.

IMPERFECT FETATION IN SOME ORGAN EXTERIOR TO THE UTERUS.

GEN. III. Physiological explanation.

WE have shown in the Physiological Proem to the present class that the sexual fluid of the male passes, at the time of the embrace or soon afterwards, into the uterus, and from the uterus into the Fallopian tube, or even the ovarium, where it impregnates an ovulum detached from its proper niche by the force of the orgastic perculsion. It sometimes happens, however, that the Fallopian tubes, or the openings from the uterus leading into them, are so impacted with fat or some other material, or so straitened in their diameter, that the detached and impregnated ovum is incapable of obtaining a passage into the cavity of the uterus, and is arrested in its course: in which case it must either remain in the tube itself, into which it has thus far proceeded, or drop, at the origin of the fimbriæ, into the hollow of the abdomen. And it has also sometimes occurred that the ovulum or vesicle that has been detached in the ovarium has been incapable of making its way out of the ovarium itself, and has become impregnated in its original seat without a possibility of stirring farther.

In all these cases the progress of impregnation still goes forward though in an imperfect manner, and with an imperfect developement of organs, and we are hence

furnished with the three following distinct species of extra-uterine gestation: Gen. III. Eccyesis. Extra-uterine fetation.

1. ECCYESIS OVARIA. OVARIAN EXFETATION.
2. ——— TUBALIS. TUBAL EXFETATION.
3. ——— ABDOMINALIS. ABDOMINAL EXFETATION.

It is a very remarkable fact that the uterus still sympathizes in every one of these species with the imprisoned and impregnated ovum, in whatever part of the body it may happen to be lodged, produces ordinarily the same efflorescent membrane or decidua, which we have already observed it secretes in the commencement of utero-gestation for the reception of the ovum upon its arrival in the uterus, enlarges its capacity and thickens its walls as though the fetus were really present in its interior; exhibits the same symptoms and excites the same caprices of the stomach as those by which utero-gestation is usually distinguished: and at the expiration of the regular period of nine months, and sometimes, as in ordinary pregnancy, even before this, is attacked with spasmodic or expulsory pains, which often continue for some hours and seldom altogether subside till the organized and extra-uterine substance loses its living power, and becomes of the nature of a foreign material to the organs by which it is surrounded. After which menstruation again returns regularly, as it has hitherto been suspended.

Uterus sympathizes with the growth of the ex-ovum wherever lodged: decidua is produced. Uterus enlarges: excites the capricious symptoms of genuine pregnancy, and at the close of nine months is attacked with expulsory pains: which subside when the ex-fetus loses its living power.

The extra-uterine ovum, in the mean while, endowed in consequence of its impregnation with a principle of life, continues to grow, whatever be the place of its aberration, in some instances becomes surrounded with an imperfect kind of placenta, developes the general structure of its kind, and exhibits an organized compages of bones, membranes, vessels, viscera, and limbs; the whole figure being more or less perfect according to circumstances that lie beyond our power of penetration.

Growth of the ex-ovum.

After the death of the extra-uterine fetus, the uterus and consequently the general frame, frequently becomes quiet; and the bulky substance, enveloped in a covering of coagulable lymph, remains for years, or perhaps through

State of the ex-fetus after death.

Gen. III. Eccyesis. Extra-uterine fetation.

the whole of life, with no other inconvenience than that of a heavy weight and tumour in the part in which the dead fetus is lodged. But, in many instances, like any other intrusive or foreign material, it produces great irritation, which is succeeded by the ordinary process of ulcerative inflammation, and an opening is hereby made into the intestines, or the vagina, or externally through the integuments of the abdomen, and the indissoluble parts of the fetus are discharged piece-meal; sometimes the patient sinking during the tedious process under the exhaustion of a hectic, but more generally evincing strength enough to sustain the progressive expulsion, and at length restored to the enjoyment of former health.

Sometimes undisturbing through the whole of life.

But sometimes productive of great mischief in various ways.

SPECIES I.

ECCYESIS OVARIA.

Ovarian Extetation.

IMPERFECT FETATION OCCURRING IN THE RIGHT OR LEFT OVARIUM.

Gen. III. Spec. I. The species common and often very distressing.

THE physiology and general pathology have been already given so much at large in the paragraphs immediately preceding, that it is only necessary to observe further that this form of extra-uterine fetation is very common, as well as very distressing. Vater relates a singular case of this kind producing a general intumescence of the abdomen on the right side, the right ovarium being the seat of the disease, that continued with little variation through a period of three years and a half with an equal degree of distress and danger to the patient*: and other instances are adverted to in the author's volume of Nosology.

Illustrated.

* Dissert. de Graviditate apparente ex tumore ovarii dextri enormi, &c.

Gen. III. Spec. I. Eccyesis ovaria. Ovarian exfetation.

It is in this organ more especially that rudimental attempts at fetal organization, the mere sports of nature, are frequently found produced without impregnation, or any contact with the male sex, and sometimes in very young subjects.

Rudimental attempts at fetal organization sometimes found in this organ without impregnation, and in very young subjects.

One of the most singular cases of this kind is that communicated by Dr. Baillie to the Royal Society in the year 1789*. The young subject of the case was not more than twelve or thirteen years old, with an infantine uterus and perfect hymen: and the fetation consisted of a suetty substance, hair, and the rudiments of four teeth.

Singular example in an infant.

The same kind of formative ludibria are found, also, in mature life in women of the most correct lives, and whose chastity has never been impeached, of which we have an instance in a late volume of the Transactions of the Medico-Chirurgical Society. The subject, an unmarried female, was about thirty years of age, at the time of her death, which took place after a long series of suffering, accompanied with great pain in the region of the bladder, and a considerable swelling of the abdomen. On examining the body, a large tuft of hair of about the size of a hen's egg was found inclosed in a tumour of the left ovarium, surrounded with a fluid of the thickness of cream. In the bladder was traced a similar tuft of hair surrounded with a like fluid which distended and plugged up the organ†.

Example in an adult virgin.

Such rudiments of organized form have been resolved by the disciples of Buffon into the peculiar activity of his *molecules organiques*, concerning which we have already spoken in the Physiological Proem to the present class, thronging with a more than ordinary proportion in the region or organ in which the preternatural productions have been found to exist: and by still later physiologists into a salacious temperament in the individuals who have been the subjects of them, and who are still further said, as we have also remarked in the same Proem, to have a power when this orgastic erethism is at its utmost heat, as

How explained by the followers of Buffon:

by later physiologists.

* Phil. Trans. 1789. † Vol. IX. p. 427.

Gen. III. Spec. I. Eccyesis ovaria. Ovarian Exfetation.

about the period of menstruation, of irritating and even inflaming the ovaria, and occasionally even of detaching one or more ovula and putting them into a like state of irregular action. And where cases occur in infants they are ascribed to the same cause operating on a constitution diseased by a morbid precocity *.

Neither of these explanations adequate or satisfactory.

The first of these explanations it is hardly worth while to combat in the present day, and particularly in the present place, after having already illustrated, in the Prolem above referred to, the feebleness of its first principles. And with respect to the second it is sufficient to observe that the very same attempts at fetation are sometimes made and carried quite as far towards completion, in organs that cannot be suspected of any salacious sensation, and even in males as well as in females. Thus, Dr. Huxham gives a case in which the rudiments of an embryo were found in a tumour seated near the anus of a child†; and Mr. Young a still more extraordinary one, yet a case well known, I suppose, to nearly all the medical practitioners of this metropolis from personal inspection, of a large protuberant cyst, containing a nucleus of fetal rudiments found in the abdomen of a *male* infant about fifteen months old. The child died after a tedious and painful illness. The body was opened, and the cyst examined: "The substance it contained," says Mr. Young, "had unequivocally the shape and characters of a human fetus": for a particular description of which the reader must turn to the account itself‡.

Illustration from general principles of physiology.

Upon this subject we can only say that all such abortive attempts are monstrosities; and that monstrosities are not confined to any particular age as that of fetal life, or to any particular organ. They run occasionally through every part of the frame, and every part of the life, and appear in the form of cysts, and excrescences, and polypi, and ossifications, and a thousand other morbid deviations

* Vol. IV. Præotia feminina, Ord. I. Gen. II. Spec. II. of the present class.
† Phil. Trans. Vol. XLV. 1748. p. 325.
‡ Medico-Chir. Trans. Vol. I. p. 241.

from the ordinary march of nature, though they are most frequently found in the first months of impregnation, unquestionably because the excited organs are, at that period, more capable than at any other, of being moulded, by accidental circumstances, into anomalous shapes, and of preserving life under almost every kind of misconstruction and deformity.

GEN. III. SPEC. I. Eccyesis ovaria. Ovarian Exfetation.

In extra-uterine fetation of whatever kind, or wherever situated, the art of medicine can do but little. If the tumour be free from pain, and the general system not essentially disturbed by it, nothing should be attempted whatever. And if, in a case of irritation and ulcerative inflammation, nature herself seems to point out one particular part for the opening of the abscess rather than another, it will almost always be far better merely to watch her footsteps, and assist her intention, than to attempt a cure or removal of the cyst in any other way: for we had long ago an opportunity of observing, when treating of INFLAMMATION generally, that, "it is a wise and benevolent law of Providence, and affords an incontrovertible proof of an instinctive remedial power, that inflammation, wherever seated, is always more violent on the side of the inflamed point nearest the surface, and shows a constant tendency to work its way externally rather than internally";* or, in other words, in that direction in which the most salutary end can be obtained with the least essential mischief. And, hence though it may often be found adviseable to enlarge an opening made externally by the effort of nature alone, it will generally be injurious to deviate from the spot thus instinctively marked out, and make an opening elsewhere.

Medicine of but little avail.

No means to be used if the tumour be quiet.

In inflammation the course proposed by the remedial power of nature to be watched, and advantage taken of it.

The cyst has sometimes lain dormant, or without producing much disturbance, for many years, and then, from some accidental cause, has become irritated, inflamed, and produced a large abscess: the ovarium, in the progress of the inflammation, forming an adhesion to the integuments of the abdomen, and thus at length breaking externally;

The cyst has lain dormant for many years: and then become a source of irritation from some accidental cause: has produced an abscess.

* Vol. II. p. 291.

GEN. III. SPEC. I. Ecoyesis ovaria. Ovarian exfetation.

mostly in the course of the linea alba, often near the navel, but sometimes towards the groin. In a few instances, however, the inflammatory action has travelled in some other direction, and sought some other outlet: so that the ovarium has formed an adhesion with the vagina, or the larger intestines, and ultimately opened into them, and the bones and other indissoluble parts of the fetus have been thrown forth in fragments from the vagina or the anus. Zacutus Lusitanus gives a case in which the bones of an impregnated ovarium were discharged piece-meal by the anus after the impregnation had continued for twelve years*: and Bartholin another of much longer duration, in which an exit was formed in the hypochondrium after the fetus had been imprisoned for not less than eighteen years.

In this case opens in different directions: as near the navel, in the vagina or larger intestines.

Exemplified.

Has sometimes been successfully removed by art without waiting for any natural indication.

In a few instances, however, the extra-uterine substance has been removed by art without waiting for the formation of an abscess. A successful operation of this kind is related in the Histoire de l'Academie Royale, after a gestation of twenty-seven months, the child being extracted by an incision into the abdomen†. M. Trisen gives a similar example, attended with a like favourable issue‡: and in the Edinburgh Medical Commentaries we have an account of the vagina being laid open for the same purpose §.

Illustrated.

Often acquires a considerable developement.

The fetus has occasionally been found to acquire a very considerable developement and advance towards perfection. Bianchi gives the history of one that on dissection, after the death of the mother, who carried it fourteen years after its apparent death, weighed eight pounds‖; and Mr. Painter has lately given the case of a lady who seems to have died in labour of a fetus of the same kind, that on being taken from the body immediately after death, was found dead indeed, but complete in its parts;

* De Praxi admirandâ. Lib. II. Obs. 157.

† Hist. de l'Acad. des Sciences, 1714, p. 29. 1716. p. 33.

‡ Observ. Chirurg. Leid. 1743. 4to.

§ Smith, Vol. v. p. 337.

‖ Lieukand, Hist. Anat. Med. I. Obs. 1533.

and nearly of the size which is usual at the fifth month of uterine gestation. The Fallopian tubes, apparently too much obstructed at the time of impregnation for a descent of the ovum, were now altogether impervious*. The uterus itself was not much enlarged, but there was not the ordinary appearance of a deciduous tunic.

Gen. III. Spec. I. Eccyesis ovaria. Ovarian exfetation.

SPECIES II.

ECCYESIS TUBALIS.

Tubal Exfetation.

IMPERFECT FETATION OCCURRING IN THE FALLOPIAN TUBE.

Gen. III. Spec. II. The most common form of exfetation, and the most dangerous.

Explained.

Diemerbroeck has observed that this is the most common cause under which extra-uterine gestation shows itself†, and it is at the same time the most dangerous. There is in truth less room for distention here than in any of the other cavities in which the exiled ovum may happen to lodge: and hence the overstretched tube has occasionally bursted, and the patient has soon fallen a sacrifice to the irritation and fever produced by so large a rent: while, if this have not taken place from the mischief done to the tube, it has followed nearly as soon from the morbid excitement and inflammation produced in the abdomen in consequence of the sudden entrance of so large a foreign body into its cavity. Dr. Middleton, however, has described a singular case of a woman who carried a fetus for sixteen years in one of the Fallopian tubes with so little disturbance to the general health of

Singular example.

* Lond. Med. Repos. June 1823. † Opera omnia Anatomica, p. 135.

Gen. III. Spec. II. Eccyesis tubalis. Abdominal exfetation.

the system, that at this period she became pregnant in the regular way, and appears to have passed through her pregnancy with a favourable issue *. The general pathology and mode of treatment run parallel with those of the preceding species.

General treatment.

SPECIES III.

ECCYESIS ABDOMINALIS.

Abdominal Exfetation.

IMPERFECT FETATION OCCURRING IN THE CAVITY OF THE ABDOMEN.

Gen. III. Spec. III. Ex-fetus how arrives in the cavity of the abdomen:

AN extra-uterine fetus may be deposited in the cavity of the abdomen by bursting through the walls of the ovarium or Fallopian tube after it has been produced there, or by an accidental drop of the impregnated ovum from the extremity or fringe of the tube in its way to the uterus. In the two former instances there is danger of great and fatal inflammation, not less from the rent produced in the organ just quitted by the fetus, than from the irritation which so large a foreign body cannot fail to produce on the organs on which it presses. In the last instance, on the contrary, the substance on its first entrance, is so minute, and its growth so gradual, that the contiguous organs suffer little or no irritation except from some accidental excitement, till at length, indeed, the magnitude of the fetus may alone be a sufficient cause of morbid action, and lay a foundation for the most serious consequences.

when dropped by abscess great danger of inflammation from the first.

When produced here from an ex-ovum little or no irritation.

Even in this species the

In the introductory remarks to the present genus †, we

* Phil. Trans. Vol. XLIII, 1744-5. † Supra, p. 247.

observed, that, in almost all cases of extra-uterine fetation, the moment the ovum becomes impregnated the womb regularly sympathizes in the action, produces a tunica decidua, enlarges, ceases to menstruate, mimics the entire process of utero-gestation, and, at the expiration of nine months, is attacked with regular labour-pains. After these have continued for some hours they gradually cease: and, what is still more remarkable, the ex-fetus, which, till this moment, is endowed with life, and continues to grow, how imperfect soever its form, dies as though strangled in its imprisonment; and by becoming a dead substance, becomes, at the same time, a substance obnoxious to the living organs around it, which have hitherto suffered little inconvenience from its proximity; often excites irritation and an abscess, and from such abscess, as we have already observed, is thrown forth piece-meal.

GEN. III. SPEC. III. Eccyesis abdominalis. Abdominal exfetation.

uterus sympathizes and runs through the whole train of pregnant symptoms.

The following history which is highly curious in itself, forms a striking illustration of the whole of these remarks. It is published by Dr. Bell of Dublin, from a full knowledge of the entire facts. A young woman, aged twenty-one, after being married fifteen months had the usual signs of pregnancy, and at the expiration of her reckoning was attacked with regular labour-pains which were very violent for some days, when they gradually left her. But the abdomen still continued to enlarge, while the strength of the patient as gradually failed, and she was reduced to the utmost state of emaciation. Eight or nine months from the cessation of her labour-pains she discharged a considerable quantity of fluid from a small aperture at the navel, along with which were perceived some fleshy fibres and pieces of bone. It was proposed to follow up this indication of nature, and make an opening into the abdomen at this very point, large enough to remove the fetus supposed to be lodged there. This was accomplished by an incision running two inches above and the same length below the navel, when the bones of TWO full grown fetuses were extracted, for little beside bones at that time remained. No hemorrhage ensued, and the patient re-

Singular case in illustration from Bell of Dublin.

GEN. III. SPEC. III. Ecycesis abdominalis. Abdominal exfetation.

covered her health so speedily as to be able to menstruate in about three months. After three months more she was prevailed upon again to cohabit with her husband, became pregnant, had a natural labour, and bore several children in succession *.

Case explained.

In this case it is clear that the sensations of the uterus during the developement of the twin ex-fetuses, were those of mere sympathy; as it is also that they ceased to grow, and became dead and irritating substances after the common term of utero-gestation, or on the cessation of the labour-pains.

Inflammation produced not always thus violent: but only sufficient to form a secretion and layer of coagulable lymph which becomes a nidus to the fetus, and protects the adjoining parts from irritation.

This is the usual course, but in some cases the irritation the dead substance excites, is less violent, and, instead of an ulcerative, an adhesive inflammation is produced, and coagulable lymph is thrown forth, which, by the law of nature, is gradually transformed into a soft and membranous material that becomes a sheath or nidus for the dead fetus, and prevents it from exciting any further irritation. And in this manner an abdominal ex-fetus has sometimes been borne for a considerable number of years, or even to the end of life, without any serious mischief. In the volume of Nosology I have referred to various proofs of its having, in this way lain quiet for twenty-two, twenty-six, and even forty-six years.

The same sometimes in the uterus itself.

Even in the uterus itself the whole of this process has in a few rare instances happened where a morbid cartilaginous membrane has taken the place of the ordinary tissue, or there have been any other means of obstructing the descent of the fetus, of which the following cited by M. Fouraier, is a striking example. A woman of Soigny, thirty years of age, after four years of marriage, and one miscarriage, became pregnant, quickened, and had a flow of milk in the breasts. At nine months regular symptoms of labour came on, but shortly ceased. In the course of a month she became greatly debilitated, and continued so for a year and a half, during which time her life was often

* History of a case in which two Fetuses that had been carried near twenty-one months, were successfully extracted from the abdomen by incision, &c.

despaired of; afterwards she recovered strength, but the milk continued in her breasts for thirty years, yet she had never any return of the catamenia. At the age of sixty-one she died of peripneumony, and the body was opened. A tumour, eight pounds in weight, was found attached to the fundus of the uterus, inclosing a male child perfectly formed, and of full size for nine months. It did not exhibit any signs of putrefaction, nor exhale any disagreeable smell. It was enveloped in a chorion and amnios, which membranes were ossified, as was also the placenta. The dissection was performed in the presence of two physicians and another surgeon *.

GEN. III. SPEC. III. Eccyesis abdominalis. Abdominal exfetation.

Putrefaction, under these circumstances, does not take place, for the imbedded substance is shut out from the chief auxiliary to putrefaction, which is air: but a change of some other kind is generally found to prevail, though with some diversity, according to the accidental circumstances that accompany it. And hence the fetus, on opening the cyst, after the death of the mother, or on its own extraction antecedently, has been found sometimes converted into adipocire, or a suetty or cetaceous material †, making a near approach to it; sometimes into a leathery or cartilaginous structure ‡; and sometimes into an osseous or almost stony mass, which has been distinguished by the name of OSTEOPÆDION OR LITHOPÆDION §.

Hence putrefaction does not take place but a change of another kind is often found varied by circumstances, as a conversion into adipocire or suet.

Osteopædion what. Lithopædion what.

Under these circumstances, also, the bulk and weight of the fetus has considerably varied; for, the fluids having evaporated, it has often been found light and shrivelled, yet, when loaded with osseous matter, it has been peculiarly heavy. In a structure of somewhat more than ordinary completion, Krohn found the weight amount to four pounds and a half ‖.

Bulk and weight of the fetus greatly altered by such changes.

For medical treatment there is little scope, and this little has been already touched upon under the first species.

* Dict. des Sciences Médicales, Art. Cas. Rares.

† Wagner, Nov. Act. Liter. Maris. Balth. 1699.

‡ Phil. Trans. Various examples, passim.

§ Abhandl. der Josephin. Acad. Band. I.—Eyson, Diss. de Fœtû lapidescente. Groning. 1661.

‖ Fœtûs extra uterum historia. Lond. 1791. Gött. Ann. 1791.

GENUS IV.

PSEUDOCYESIS.

Spurious Pregnancy.

SYMPTOMS OF PREGNANCY WITHOUT IMPREGNATION; CHIEFLY OCCURRING ON THE CESSATION OF THE CATAMENIA.

GEN. IV. Comparison of the preceding with the present species.

IN the preceding genus we beheld the uterus excited to action, and mimicking the progress of pregnancy, though without any pretensions to it, in consequence of its association with some extra-uterine impregnation. In the present genus there is no proper impregnation any where, but a mere irritation derived from the lodgement of some morbid and unorganised substance, which excites a train of feelings, and not unfrequently a change of action, easily recalled from the force of habit. It is on this last account that virgins are rarely, if ever, liable to this affection. Such at least is the general opinion, which appears to be well founded; "And no case," says Mr. Burns, "that I have met with contradicts the supposition."

Train of feelings and action excited in the uterus from the force of habit in both species.

But in the present species in consequence of uterine irritability alone without any fetal formation whether uterine or extra-uterine.

This train of feeling and change of action seem also, at times, excited by a peculiar kind of irritability of the uterus itself, even where there is no substance whatever in its own or any other cavity that can become a stimulus: and we are hence put into possession of the two following distinct species:

1. PSEUDOCYESIS MOLARIS. MOLE.
2. ——————— INANIS. FALSE CONCEPTION.

SPECIES I.

PSEUDOCYESIS MOLARIS.

Mole.

THE UTERUS IRRITATED BY A COAGULUM OF BLOOD OR OTHER SECRETION LODGED IN ITS CAVITY, OFTEN ASSUMING A FIBROUS APPEARANCE.

GEN. IV. SPEC. I.

Most common cause a coagulum of blood,

A COAGULUM of blood thrown into the womb by a relaxation of the mouth of the menstrual excrements, or remaining there as a sequel of miscarriage or labour, is perhaps the most common cause of this morbid action and sensation. It was long ago thus explained by Mr. Hewson—"from the blood's being without motion in the cavity of the uterus"; and consequently coagulating: "and hence", continues he, "the origin of those large clots which sometimes come from the cavity: and which, when more condensed by the oozing out of the serum, and of the red globules, assume a flesh-like appearance, and have been called moles."* The concretion, indeed, has become sometimes so close and indurated as to resemble the consolidation of a stone; and hence Mr. Bromfield describes a mole expelled from the uterus as consisting of a stony mass of the size of a child's head†. And Hancroft has related a similar case‡.

as asserted by Hewson.

This sometimes greatly altered in its form and ordinary proportion. Occasionally hard like stone.

Living blood, however, has a strong tendency at all times, and especially when aided by rest and the warmth of the body, to fabricate vessels and assume a membranous structure. "I have reason to believe", says Mr. J. Hunter, "that the coagulum has the power, under neces-

Sometimes assumes a fibrous or other organized structure.

* Inquiries, &c. Part I. p. 27. † Observ. II. p. 156.

‡ Diss. de Molâ, occasione molæ osseæ in vetula inventæ. Goet. 1746.

GEN. IV. SPEC. I. Pseudocyesis molaris. Mole.

Explained.

sary circumstances, to form vessels in and of itself: for although not organic, it is still of a peculiar form, structure, or arrangement. I think I have been able to inject what I suspected to be the beginning of a vascular formation in a coagulum when it could not derive any vessels from the surrounding parts."* It is probably on this account that we sometimes find the discharged mass or mole evincing something of a fibrous or membranous appearance, and mimicking the structure of an organized substance.

Fragments of placenta sometimes a cause: and hence the mole of a still more complicated make.

Fragments of a placenta, or of its membranes have also sometimes remained unexpelled from the uterus, and have become blended with coagula of blood†, and probably of blood aiming, as above, at a vascular developement, and hence the mole has been of a still more complicated character, and has often puzzled practitioners of great judgement and experience.

Hydatids have frequently lodged in the sulci: and swollen the mass to an enormous size.

And occasionally hydatids have found the means of forming a nidus in some one of the sulci of the womb, and, by swelling into a considerable vesicular tumour or various clusters of such tumours, have very considerably added to the enlargement‡.

The distinguishing character in this case is the perpetual oozing of a colourless watery fluid from the vagina. The hydatid is usually dispelled by a process resembling labour, which is followed by a profuse and alarming hemorrhage, that however seldom proves fatal under proper management§.

Where fragments of an uterine fetus are found, not properly called a mole: such being rather miscarriages,

Many writers have described, by the name of moles, the fragments of a fetus, which have long remained in the uterus after its death, and have sometimes been surrounded by an adscititious involucrum, or some part of its placenta or membranes, but so changed by some subsequent chemical or animal operation, as to have little resemblance to their original structure. These, however, are rather mis-

* On Blood, &c. p. 92. 4to. Edit. 1794.

† Ruysch. Thesaurus, III. VI.

‡ Eph. Nat. Cur. Dec. II. Ann. II. 157. Ann. VIII. 50. et alibi.—Morgagni, De Sed. et Caus. Morb. Ep. XLVIII. 12, &c.

§ Clarke, Observations on the Diseases of Females, &c. 8vo. 1821.

carriages, or remnants of miscarriages, than moles. They manifestly bespeak an impregnation and organic growth in the proper organ, but, owing to torpitude or some other diseased condition of the womb, were not expelled at the period of the death of the fetus. We have already observed, in treating of miscarriage, PARACYESIS ABORTUS, and more particularly still under PARACYESIS PLURALIS, that such retention, and almost to an unlimited period, is by no means uncommon, and have illustrated the remark by numerous examples.

or remnants of miscarriages lying for a long time unexpelled, as already explained.

Simulating pregnancy, from molar concretions, assumes in many cases so much of the character of genuine impregnation as to be distinguished with considerable difficulty. In general, however, the abdominal swelling increases in the spurious kind far more rapidly than in the real for the first three months; after which it keeps nearly at a stand: the tumour, moreover, is considerably more equable, the breasts are flat and do not participate in the action, and there is no sense of quickening. There is almost always a retention of the menses.

Simulating pregnancy from molar concretions often mistaken for utero gestation.

Distinctive characters.

If we suspect the disease, the state of the uterus should be examined, and it will often be in the examiner's power to ascertain the fact, and by a skilful introduction of the finger to hook down a part of the mass through the cervix, and hence, by a little dexterity, to remove the whole; but he should be careful not to break the mole into fragments.

The state of the uterus to be examined: by which the concretion may often be removed.

Moles, wholly or in fractions, are thrown out by the action of the uterus at different periods: often at three months; more frequently by something like a regular accession of labour-pains, at nine: but they occasionally remain much longer: in a case of Riedlin's, for three years*; and in one described by Zuingen for not less than seventeen†.

Moles wholly or in fractions discharged at different periods: but often retained for many years.

* Lin. Med. 1695, p. 297. † Theatrum Vitæ humanæ, pp. 331. 357.

SPECIES II.

PSEUDOCYESIS INANIS.

False Conception.

THE UTERUS VOID OF INTERNAL SUBSTANCE; AND IRRITATED BY SOME UNKNOWN MORBID ACTION.

Gen. IV. Spec. II. Womb most irritable in its earliest and in its latest power of action: and hence towards the close of menstruation sometimes re-assumes the feelings of pregnancy it has formerly sustained, and goes through the entire train of symptoms. This illusory feeling dies away gradually, sometimes at three months, but sometimes not till nine, when there is a feeble attempt at labour-pains.

THERE are two periods during the active power of the womb in which it is peculiarly irritable; and these are at the commencement, and at the final termination of the catamenial flux. And hence it sometimes happens at the last period, from some unknown excitement, though generally, perhaps, the increased erethism, which, in consequence of such irritation, accompanies the conjugal embrace, that it becomes sensible of feelings and communicates them to the stomach, not unlike what it has formerly sustained in an early stage of impregnation; and, a catenation of actions having thus commenced, every link in the chain that accompanied the whole range of former pregnancies, is passed through and as accurately imitated as if there were a real foundation for them.

This illusory feeling, however, sometimes dies away gradually at the end of three months, but more usually runs on to the end of the ninth, when there is occasionally a feeble attempt at labour-pains, but they come to nothing: and the farce is gradually, and, in a few instances suddenly, concluded by a rapid diminution of the abdominal swelling, and a return of the uterus to its proper size.

Gen. IV. Spec. II. Pseudocyesis inanis. False conception. Singular exemplification.

The most extraordinary case of this kind that has ever occurred to me, is given under the unmeaning name of *nervous pregnancy*, by M. Rusel of Var, in the department of the Charante, in the first number of the *Gazette de Santè* for 1824; which is peculiarly characterized by the perpetuity of its annual recurrence for twenty years, or rather through the whole of the patient's life. Mary Gibaud had uniformly enjoyed good health previous to her marriage. This took place when she was about thirty; shortly after which, menstruation ceased; nausea or sickness was complained of in the morning; the abdomen enlarged; quickening and subsequent motions of the fetus were supposed to be felt: and at length what were conceived to be labour pains supervened. These continued while a female midwife was present, for thirty-six hours; but without any enlargement of the os uteri. A surgeon of reputation was applied to, at the moment of whose arrival a considerable uterine hemorrhage took place, accompanied with syncope. The surgeon proceeded instantly, to deliver, but to the astonishment of all present, he found the womb entirely unimpregnated. The hemorrhage took off the pains for two or three hours, at which time they returned again. The surgeon now bled her copiously, and every symptom vanished. At the end of a month, the menstrual excitement not producing any discharge, the same train of feelings were produced in their stead, ran the same round, and terminated in the same way; the same precise order being repeated for twenty times in succession. The patient was from time to time visited by different professors of eminence; and on one occasion was taken to the hospital of Angouleme, where she was tapped, as being supposed to be ascetic; but no fluid was evacuated. Her breasts through every period were gorged with milk, and she at length died in her fifty-first year, of an inflammation of the ear, that spread to the brain*.

* See Cl. III. Ord. II. Gen. VII. Spec. II. Empresma otitis interna.

Gen. IV. Spec. II. Pseudocyesis inanis. False conception. How distinguished from genuine pregnancy.

The ordinary distinctive signs which indicate real from spurious pregnancy under the last species, and which we have already noticed, are equally applicable to the present, and the practitioner should avail himself of them.

CLASS VI.

CLASS VI.

ECCRITICA.

DISEASES OF THE EXCERNENT FUNCTION.

ORDER I.

MESOTICA.

AFFECTING THE PARENCHYMA.

II.

CATOTICA.

AFFECTING INTERNAL SURFACES.

III.

ACROTICA.

AFFECTING THE EXTERNAL SURFACE.

CLASS VI.

PHYSIOLOGICAL PROEM.

Class VI. Solid parts composed of three substances.

Filamentous parenchymatous, cellular, or mucous tissues.

The structure of the solid parts of the body consists of three distinct substances—a filamentous, a parenchymatous, and a cellular or web-like, as it was denominated by Haller, the tissu muqueux of Bordeu *, and the tela mucosa of Blumenbach†. The filamentous is chiefly to be traced in the bony, muscular, and membranous parts: the parenchyma, a term first employed by Erasistratus, and, as we shall show hereafter, in a very different sense from that in which it is used at present, in what are commonly called visceral organs: and the cellular in both. This last, while it serves the purpose of giving support to the vessels and nerves of the fibrous parts, of separating them from each other where necessary, and where necessary of connecting them, is the repository or receptacle of the gelatinous or albuminous material, which constitutes the general substance of the parenchymatous parts, and has peculiar qualities superadded to it according to the nature of the organ which it embodies, and the peculiarity of the texture which runs through it:—whence the structure of the liver differs from that of the pancreas, the structure of the pancreas from that of the kidneys, and the structure of the lungs, or of the placenta, from all the rest. It is usually supposed to be a condensation of this that forms the proper membranes which line the ex-

Use of the last.

* Recherches sur le Tissu Muqueux ou Organe Cellulaire. Paris, 1767.

† Physiol. § 21.

CLASS VI.

terior of the viscera, as well as the interior of those that are hollow, and which, as we have already observed*, are divided into serous, mucous, and fibrous by Bichat and and his followers.

All these parts wear out by their own use and are supplied from the blood.

All these parts are perpetually wearing out by their own action—the most firm and solid as well as the most spongy and attenuate. They are supplied with new materials from the general current of the blood, and have their waste and recrement carried off by a correspondent process.

Hence two distinct sets of vessels: as secretories and absorbents.

It is obvious that, for this purpose, there must be two distinct sets or systems of vessels: one by which the due recruit is provided, and the other by which the refuse or rejected part is removed †. These vessels are, in common language, denominated SECRETORIES and ABSORBENTS.

Related to each other as arteries to veins:

They bear the same relation to each other as the arteries and veins; the action which commences with the former is carried forward into the latter: and we may further observe that while the secretories originate from the arteries, the absorbents terminate in the veins.

and fulfil the eccritical or excernent function.

The general function sustained by these two sets or systems of vessels is, in the present work, denominated ECCRITICAL or EXCERNENT: the health of this function consists in the balance of power maintained between their respective vessels: and its diseases in the disturbance of such balance. There may be undue secretion with healthy absorption; undue absorption with healthy secretion: or there may be undue or morbid absorption and secretion at the same time.

Refuse matter not all wasted. Eliminated matter of two sorts: one capable of being restored to use: the other altogether incapable of revival.

The refuse matter, however, or that which is no longer fit for use, is not all wasted: nor in reality any of that which falls within the province of the absorbents. Nature is a judicious economist, and divides the eliminated materials into two parts—one consisting of those fluids which, by an intimate union with the newly formed chyle, and a fresh subaction in the lungs, may once more be adapted

* Vol. II. Physiol. Proem.

† Bostock, Elementary System of Physiology, p. 70. 8vo. 1824.

for the purposes of general circulation; and the other of those which no elaboration can revive, and whose longer retention in the body would be mischievous. It is the province of the absorbent system to take the charge of the whole of the first office; to collect the effete matter from every quarter, and to pour it, by means of innumerable channels that are perpetually uniting, into the thoracic duct, which forwards it progressively to the heart. The really waste and intractable matter, instead of disturbing the action of the absorbents, is at once thrown out of the general system by the mouths of the secernents themselves, as in the case of insensible perspiration; or, where such a perpetual efflux would be inconvenient, is deposited in separate reservoirs, and suffered to accumulate, till the individual has a commodious opportunity of evacuating them, as in the case of the urine and the feces.

CLASS VI.

Absorbent system takes the charge of the first: the second is thrown out from the system.

Thus far we see into the general economy: but when we come to examine minutely into the nature of either of these sets of vessels, we find that there is much yet to be learned both as to their structure, and the means by which they operate. The subject is of great importance, and may, perhaps, be best considered under the three following divisions:

I. THE GENERAL NATURE OF THE SECERNENT SYSTEM
II. THE GENERAL NATURE OF THE ABSORBENT SYSTEM.
III. THE GENERAL EFFECTS PRODUCED BY THE ACTION OF THESE TWO SYSTEMS ON EACH OTHER.

I. It was at one time the common doctrine among physiologists, as well chemical as mechanical, that all the vast variety of animal productions which are traced in the different secretory organs, whether wax, or tears, or milk, or bile, or saliva, were formerly contained in the circulating mass; and that the only office of these organs was to *separate* them respectively from the other materials that enter into the very complex crasis of the blood; whence, indeed, the name of SECERNENTS or SECRETORIES, which mean nothing more than *separating powers*. This action was by the chemists supposed to depend on peculiar attrac-

I. Secernent system. All secreted matters formerly supposed to be contained in the circulating mass:

Class VI. I. Secernent system.

and separated by peculiar attractions; or ferments: or the peculiar figure of the respective vessels.

tions, or the play of affinities, which was the explanation advanced by some; or on peculiar ferments, conveyed by the blood to the secernent organ, or pre-existing in it, which was the opinion of others. The mechanical physiologists, on the contrary, ascribed the separation to the peculiar figure or diameter of the secretory vessels, which, by their make, were only fitted to receive particles of a given form, as prisms where the vessels were triangular, and cubes where they were square. Such was the explanation of Des Cartes: while Boerhaave, not essentially wandering from the same view, supposed the more attenuate secretions to depend upon vessels of a finer bore, and the more viscid upon those of a larger diameter.

These hypotheses disproved by modern chemistry: and the secretive fluids shown to be produced by recomposition.

Modern chemistry, however, has completely exploded all these and many other hypotheses founded upon the same common principle, by proving that most of the secerned materials are not formally existent in the blood, and, consequently, that it is not, strictly speaking, by an act of separation, but of new arrangement or recomposition that they are produced out of its elements. And hence, physiologists have been led to a critical inquiry into the fabric of the secerning organ, but hitherto without much satisfaction. In its simplest state it seems, as far as it can be traced, to consist of nothing more than single vessels possessing a capillary orifice, as in the Schneiderian membrane. In a somewhat more compound form we find this orifice opening into a follicle, or minute cavity of an elliptic shape; and, in a still more complicated make, we meet with a glandular apparatus more or less glomerate, consisting of a congeries of secernent vessels, with or without follicles, and occasionally accompanied with a basin or reservoir for a safe deposit of the secreted or elaborated matter against the time of its being wanted, of which the gall-bladder furnishes us with a well-known example. But in none of these instances are we able to discover any peculiar device produced by this complication of machinery beyond that of affording the means of accumulation: for large as is the organ of the liver, it is in the penicilli, or the pori biliarii alone that the bile is formed and completely ela-

Fabric of the secerning organs:

simple capillaries: vessels with the appendage of a follicle; and glands.

Glands seem to afford nothing more than

borated: the liver is a vast bundle or combination of these, and hence affords an opportunity for a free formation of bile in a collective state, but it has not been ascertained that it affords any thing more. And although in the gall-bladder we find this fluid a little varied after its deposite, and rendered thicker, yellower, and bitterer, the change is nothing more than what must necessarily follow from absorption, or the removal of a part of the finer particles of the bile. The conglomerate glands of the mammæ offer us the same results, for the milk here secreted is as perfect milk in every separate lactiferous tube, as when it flows in an accumulated form from the nipple. And hence, follicles themselves may be nothing more than minute reservoirs for the convenient accumulation of such fluids as are deposited in them till they are required for use. Mucus and sebum are inspissated by retention, but they rarely undergo any other change. We are obliged, therefore, to conclude, with Sir Everard Home, that "the organs of secretion are principally made up of arteries and veins; but there is nothing in the different modes in which these vessels ramify that can in any way account for the changes in the blood, out of which secretions arise."*

CLASS VI. I. Secernent system.

the means of accumulation: evidenced in the liver, and in the breasts.

These organs, however, are largely supplied with twigs of small nerves, and it has been an idea long entertained by physiologists that secretion is chiefly effected through their instrumentality. Sir Everard Home, in his paper inserted in the volume of the Philosophical Transactions just referred to, has "observed that in fishes which are capable of secreting the electrical fluid the nerves connected with the electrical organs exceed those that go to all the other parts of the fish, in the proportion of twenty to one:"† and, in confirmation of this view of the subject, it may be remarked that there are no parts of the body more manifestly affected; and few so much so, as the secretory organs, by mental emotion. The whole surface of the skin is sometimes bedewed with drops of sweat and

Secretion how far produced by a nervous power.

Electrical organ of gymnotus electricus, applied to this inquiry.

Secretions effected by mental emotions.

* Phil. Trans. 1809, p. 387. † Id. p. 396.

Class VI. I. Secernent system.

even of blood by a sudden paroxysm of agony of mind; grief fills the eyes with tears: fear is well known to be a powerful stimulant to the kidneys, and very generally to the alvine canal; anger gives an additional flow, perhaps an additional acrimony, to the bile; and, if urged to violence, renders the saliva poisonous, as we have already observed under the genus LYSSA*: and disappointed hope destroys the digestion, and turns the secreted fluids of the stomach acid.

Objections to this conjecture.

All this should seem to prove that the secretory organs are chiefly influenced by the sensorial system; yet Haller has long ago observed that the larger branches of the nerves seldom enter into them, and seem purposely to avoid them†: the secernent glands have little sensibility; and the secretions of plants, which have no nervous system, are as abundant, and diversified, and as wonderful in every respect, as those of animals.

The means, therefore, by which the very extensive and important economy of secretion is effected, seem hitherto, in a very considerable degree, to have eluded all investigation. We behold, nevertheless, the important work proceeding before us, and are in some degree acquainted with its machinery.

The simplest and most copious secretion, the halitus of internal surfaces.

The most simple, and at the same time, perhaps, the most copious of the fluids, which are in this manner separated from the blood, is that discharged by very minute secernent vessels, supposed to be terminal or exhalant arteries, which open into all the cavities of the body, and pour forth a fine, breathing vapour, or halitus, as it is called, which keeps their surfaces moist, and makes motion easy —an effluvium which must have been noticed by every one who has ever attended the cutting up of a bullock in a slaughter-house. We have formerly had occasion to observe that arteries terminate in two ways—in minute veins —and in exhalant vessels. The former termination can often be followed up by injections, and occasionally traced by the microscope; but no microscopic experiment has hither-

The mouths of the vessels producing this, never yet discovered.

* Vol. IV. p. 344.

† Physiolog. Tom. IX. passim.

to enabled the anatomist to discover the orifices of the exhalant branches of arteries. Their existence, however, is proved, as Mr. Cruikshank has observed, by their sometimes, and especially when enlarged in diameter or acted upon by a more than ordinary vis à tergo, pouring forth blood instead of vapour, of which we have a striking instance in bloody sweat; as also in the menstrual flux, which though not blood itself, proceeds, as Dr. Hunter has sufficiently shown, from the mouths of the exhalant arteries of the uterus, periodically altered in their diameter and secernent power.

CLASS VI. I. Secernent system. Their existence and connexion with the arterial system how proved.

II. The fluid thus thrown forth to lubricate internal surfaces, would necessarily accumulate and become inconvenient, if there were not a correspondent set of vessels perpetually at work to carry off the surplus. But such a set of vessels is every where distributed over the entire range of the body, as well within as without, to answer this express purpose: and they are hence called ABSORBENTS; and, from the limpidity of their contained fluid, LYMPHATICS.

II. Absorbent system.

Their course has been progressively followed up and developed from the time of Asellius*, who, in the year 1622, "reaped the first laurels in this field by his discovery of those vessels on the mesentery which, from their carrying a milk-white fluid, he denominated LACTEALS,"† and whose researches were confirmed and extended by the valuable labours of Pecquet, Rudbeck, Jollyfe, Bartholine, Glisson, Nuck, and Ruysch, till by the concurrent and finishing demonstrations of Hoffman and Mekel, and more especially of our own illustrious countrymen Hewson, the elder Monro, both the Hunters, and Cruikshank, the whole of this curious and elaborate economy was completely explained and illustrated towards the close of the preceding century, and the opposition of Baron Haller was abandoned.

The course of these sufficiently ascertained and demonstrated. Lacteals what.

The vessels of the absorbent system anastomose more frequently than either the veins or the arteries; for it is

Absorbents anastomose more fre-

* Epistola ad Haller. † Hewson, Of the Lymphatic System, p. 2.

Class VI. II. Absorbent system. quently than any other vessels, and why.

a general law of nature that the smaller the vessels of every kind, the more freely they communicate and unite with each other. We can no more trace their orifices, excepting, indeed, those of the lacteals, than we can the orifices of the exhalants; but we can trace their united branches from an early function, and can follow them up singly, or in the confederated form of conglobate glands, till, with the exception of a few that enter the right subclavian vein, they all terminate in the common trunk of the thoracic duct; which, as we have formerly observed, receives also the tributary stream of the anastomosing lacteals, or the absorbents which drink up the subacted food from the alvine canal, whose orifices are capable of being traced—and pours the whole of this complicated fluid, steadily and slowly by means of a valve placed for this purpose at its opening, into the subclavian vein of the left side. And as these all perform a common office, are of a like structure, pass through similar glands, and terminate in a common channel, there is strong reason to suppose them to constitute a common system; and hence, as we are capable of tracing up the mouths of the lacteals, we are led to conclude analogically, that the lymphatics have mouths of like kind, and for like purposes, although from their minuteness they have hitherto eluded all detection.

All terminate in the thoracic duct, whence their contents are conveyed to the heart,

and appear to form a common system.

Hereby a prodigious saving of animalized fluids.

By this contrivance there is a prodigious saving of animalized fluids, which, however they may differ from each other in several properties, are far more easily reducible to genuine blood than new and unassimilated matter obtained from without.

Many of the secretions thus thrown into the circulation contribute to invigorate the frame.

Illustrated.

Yet, this is not all: for many of the secretions, whose surplus is thus thrown back upon the system, essentially contribute to its greater vigour and perfection. We have a striking example of this in absorbed semen, which, as observed on a late occasion *, gives force and firmness to the voice, and changes the downy hair of the cheeks into a bristly beard: insomuch that those who are cas-

* Vol. v. p. 13. Phys. Proem. suprà.

trated in early life are uniformly deprived of these peculiar features of manhood. The absorption of the surplus matter secreted by the ovaria at the same age of puberty produces an equal influence upon the mammary glands, and finishes the character of the female sex, as the preceding absorption completes that of the male. So, absorption of fat from the colon, where, in the opinion of Sir Everard Home, it is formed in great abundance, carries on the growth of the body in youth *.

Class VI. II. Absorbent system.

Absorbents accompany every part of the general frame so closely, and with so much minuteness of structure, that Mr. Cruikshank has proved them to exist very numerously in the coats of small arteries and veins, and suspects them to be attendants on the vasa vasorum, and equally to enter into their fabric. Wherever they exist they are more richly endowed, as we have just remarked, by very numerous valves, than any other sets of vessels whatever. "A lymphatic valve is a semicircular membrane, or rather of a parabolic shape, attached to the inside of the lymphatic vessels by its circular edge, having its straight edge, corresponding to the diameter, loose or floating in the cavity: in consequence of this contrivance fluids passing in one direction make the valve lie close to the side of the vessel, and leave the passage free; but attempting to pass in the opposite direction, raise the valve from the side of the vessel, and push its loose edge towards the centre of the cavity. But, as this would shut up little more than one half of the cavity, the valves are disposed in pairs exactly opposite to each other, by which means the whole cavity is accurately closed."†

Absorbents accompany every part of the frame, and enter into the coats of the minutest vessels.

Possess very numerous valves.

The distance at which the pairs of valves lie varies exceedingly. The intervals are often equal and measure an eighth or a sixteenth part of an inch. Yet the interval is at times much greater. "I have seen a lymphatic vessel", says Mr. Cruikshank, "run six inches without a single valve appearing in its cavity. Some-

Valves vary in number and distance both in the trunks and minutest branches.

* Vol. i. p. 21. of the present work, as also Phil. Trans. 1813, p. 157.

† Cruikshank, Anat. of Absorb. Vessels, p. 66. 2d. Edit.

Class VI. II. Absorbent system.

times the trunks are more crowded with valves than the branches, and sometimes I have seen the reverse of this."*

Glands of the absorbent system what.

In the absorbents, also, we meet with glands; their form is mostly oval, one end being turned to the thoracic duct and the other from it: but we are in the same kind of uncertainty concerning their use, and, in some measure, concerning their organization, as in respect to those of the secernent system. The vessel that conveys a fluid to one of these glands is called a *vas inferens*, and that which conveys it away a *vas efferens*. The vasa inferentia, or those that enter a gland, are sometimes numerous; they have been detected as amounting to fifteen or twenty; and are sometimes thrice or oftener as many. They are always, however, more numerous than the vasa efferentia, or those which carry on the fluid towards the thoracic duct. The last are consequently, for the most part, of a larger diameter, and sometimes consist of a single vessel alone. It is conceived by many physiologists that the conglobate mass which forms the gland consists of nothing more than convolutions of the vasa inferentia; whilst others as strenuously contend that they are a congeries of cells or acini totally distinct from the absorbent vessels that enter into them. Whatever their structure may be, they seem to the present author to be powerfully auxiliary to the valves, by abating the back force they are unquestionably called at times to encounter from some morbid action, and there is reason to believe that in this way, like the conglomerate glands of the secernents, they become basins or receptacles.

Vas inferens what.

Vas efferens what.

Glands whether convolutions of vasa inferentia or a congeries of distinct cells.

Probably auxiliary to the valves in abating the back force of the fluids, and answer the purpose of receptacles.

As in the case of the secernents, we are also unacquainted with the means by which the absorbents act. This, in both instances, is said to be a *vis à tergo*,—a term which gives us little information in either instance, and is peculiarly difficult of comprehension in the latter. In their most composite state they possess a very low degree of sensibility, and are but little supplied with branches from the larger trunks of nerves.

Propulsive power unknown.

Their sensibility small, and rarely supplied with

* Loc. citat.

Class VI. II. Absorbent system.

Abstruse, however, as the process of absorption is to us at present, we have sufficient proofs of the fact. Of six pints of warm water injected into the abdomen of a living dog not more than four ounces remained at the expiration of six hours. The water accumulated in dropsy of the brain, and deposited in the ventricles, we have every reason to believe is often absorbed from the cavities; for the symptoms of the disease have been sometimes marked, and after having made their appearance, and been skilfully followed up by remedies, have entirely vanished: and the water in dropsy of the chest, and even, at times, in ascites, has been as effectually removed.

branches from the larger nerves.

Proofs of an absorbent power.

Whether any absorbents on the surface of the body:

It has been doubted by some physiologists whether there be any absorbent vessels that open on the surface of the body: yet a multitude of facts seem sufficiently to establish the positive side of this question, though it is not fluids of every kind that can be carried from the skin into the circulating system, and hence their power is by no means universal. Sailors who, when in great thirst, put on shirts wetted with salt water, find considerable relief to this distressing sensation. Dr. Simpson, of St. Andrews, relates the case of a rapid decrease of the water in which the legs of a phrenitic patient were bathed: and De Haen finding that his dropsical patients filled equally fast whether they were permitted to drink liquids or not, did not hesitate to assert that they must absorb from the atmosphere. Spirits and many volatile irritants seem to be absorbed more rapidly than water, and there can be no doubt that warmth and friction are two of the means by which the power of absorption is augmented. "A patient of mine," says Mr. Cruikshank, "with a stricture in the esophagus, received nothing, either solid or liquid, into the stomach for two months: he was exceedingly thirsty, and complained of making no water. I ordered him the warm-bath for an hour, morning and evening, for a month: his thirst vanished, and he made water in the same manner as when he used to drink by the mouth, and when the fluid descended readily into the stomach."* The aliment

appear to exist but not capable of imbibing fluids of all kinds.

Proofs of their existence and power.

* Anat. of the Absorb. Vessels, p. 108.

Class VI. II. Absorbent system.

fluids are carried to the heart and lungs directly through the venæ portæ whose function it is minutely to subdivide and mix with the blood the fluids thus absorbed, which subdivision and intermixture is necessary to prevent their proving detrimental.

Cuticle has no power of absorption in a sound state.

M. Magendie further supposes that the cuticle has no power of absorption in a sound state, either by veins or lymphatics; but that, if abraded or strongly urged by the pressure of minute substances that enter into its perspirable pores, the mouths of its minute veins are thus rendered absorbent.

Magendie's hypothesis of the use of lymphatics.

He supposes the function of the lymphatics to consist in conveying the finer lymph of the blood directly to the heart, as the veins convey the grosser and purple part: and that they rise, as the veins, from terminal arteries.

Proper lymph what.

Proper lymph, in the system of M. Magendie, is that opaline, rose-coloured, sometimes madder-red, fluid which is obtained by puncturing the lymphatics or the thoracic duct *after a long fast*. It is every where similar to itself; and hence differs from the fluid of cavities which is perpetually varying. He supposes the mistake of confounding the two to proceed from a want of attention to this fact.

One of the chief reasons urged for regarding veins as absorbents, is, that membranes which absorb actively have, in his opinion, no demonstrable lymphatics, as the arachnoid. But according to Bichat, such membranes have no more demonstrable veins than lymphatics; veins are seen to creep on them, but never to enter.

Review of Magendie's chief experiments.

The two principal experiments on which M. Magendie seems to rely in proof that the veins, and not the lymphatics, are absorbents, are the following:—First, M. Delille and himself separated the thigh from the body of a dog that had been previously rendered insensible by opium. They left the limb attached by nothing but the crural artery and vein. These vessels were isolated by the most cautious dissection to an extent of nearly three inches, and their cellular coat was removed lest it might conceal some lymphatic vessels. Two grains of the upas

escaped the attention of Lord Bacon. Even Dr. Hunter and Professor Mekel believed it in respect to certain fluids or certain parts of the body. The experiments of Hewson, J. Hunter, and Cruikshank, have, however, sufficiently shown that, while vessels, in losing life, lose the property of confining their fluids, they possess this property most accurately, so long as the principle of life continues to actuate them.

Class VI. II. Absorbent system.

There is, moreover, another method by which the ancients sometimes accounted for the inhalation and exhalation of fluids, making a much nearer approach to the modern doctrine, and that is by the mouths of vessels; still, however, regarding these vessels as arteries or veins, and particularly the latter. "The soft parts of the body", observes Hippocrates, "attract matter to themselves both from within and from without; a proof that the whole body exhales and inhales". Upon which passage Galen has the following comment: "For as the veins, by mouths placed in the skin, throw out whatever is redundant of vapour or smoke, so they receive by the same mouths no small quantity from the surrounding air: and this is what Hippocrates means when he says that the whole body exhales and inhales".

Arteries and veins conceived also by the ancients to act by absorbing mouths:

a view entertained by Hippocrates and Galen.

This hypothesis of the absorption of veins, without the interference of lymphatics, has been revived within the last eight or ten years by M. Magendie, and M. Flandrin, of Paris, who have made an appeal to experiments which appear highly plausible, and are entitled to a critical examination.

This doctrine revived by Magendie and Flandrin with some alterations.

The doctrines hereby attempted to be established are, indeed, varied in some degree from those of the Greek schools; and are more complex. In few words, they may be thus expressed: that the only general absorbents are the veins;—that the lacteals merely absorb the food;—that the lymphatics have no absorbent power whatever;—and that the villi in the different portions of the intestinal canal are formed in part by venous twigs which absorb all the fluids in the intestines, with the exception of the chyle, which last is absorbed by the lacteals, and finds its way into the blood through the thoracic duct; and that these

Hypothesis of Magendie epitomized.

Class VI. II. Absorbent system.

anastomose, or run into each other more frequently than any other set of vessels, their valves, which alone prevent a retrograde course, and direct the contained fluid towards the thoracic duct, are occasionally placed at a considerable distance from each other, in some instances not less than six inches, and that this length of interval occurs in the minute twigs as well as in the trunks. And hence, admitting that, in the veins that were cut or isolated in M. Magendie's experiments, such a vacuity of valves incidentally existed, there is also no difficulty in conceiving by what course the poisons that have already entered into their lymphatics from without should, in consequence of this frequency of anastomosis and destitution of valves, be stimulated to a retrograde course by the violence made use of, and be thrown into the current of the blood from within, by the mouths of those lymphatics that enter into the tunics of the veins; and particularly as the separated vessels were only isolated to a distance of less than three inches, while the lymphatics are occasionally void of valves to double this distance.

Reconciliation with the common doctrine continued.

In some cases we have reason to believe that the lymphatics that enter into the tunics of the lacteals, which M. Magendie admits to be a system of absorbents altogether distinct from the veins, are equally destitute of valves in certain parts or directions, and communicate by anastomosis some portion of the chyle and any substance contained in it to the interior of the adjoining veins, and consequently to the blood itself: for the experiments of Sir Everard Home upon rhubarb introduced into the stomach of an animal, after the thoracic duct has been secured by a double ligature, show that this substance, and consequently others as well, is capable of travelling from the stomach into the urinary bladder, notwithstanding this impediment: and there are certain experiments of M. Fohmann*, who has paid great attention to the subject, that seem to prove that such anastomosis is not unfrequent. In the singular experiments made with prussiate of potash

* Anatomische Untersuchungen über den Anastomosis der Lymphatiken mit der Venen. Heidelberg. 1821.

by Dr. Wollaston and Dr. Marcet, the blood which was drawn from the arm during the interval of the introduction of this substance into the stomach, and its detection in the urine, did not, indeed, on being tested, discover the smallest trace of the prussiate, though it was so obvious in the fluid of the urinary bladder. The difficulty of accounting for this is considerable, but may perhaps be explained by the very diffused state of the prussiate in the entire mass of the blood, and its greater concentration when secreted by the kidneys: by which the same test which was applied in vain, in the former instance, completely succeeded in the latter.

Effects produced on animals in a state of great debility or pain, inapplicable to cases in which there is health, strength, and freedom from pain.

There is, however, another mode of accounting for the result of M. Magendie's experiments without abandoning the well-established doctrine of absorption by the lymphatic system. It is a remark which ought never to be lost sight of, that experiments made upon animals in a state either of great pain or of great debility can give us, by their result, no full proof of the line of conduct pursued by nature in a state of health. In the dead animal body the valves of the lymphatic vessels very generally lose all elasticity and power of resistance, and transmit fluids in every direction; whence, in all probability, that porosity or transudation, which we have already observed as manifest, occasionally, in the stomach and intestines, and in various other organs, on the use of anatomical injections. And hence there can be little doubt, that as an organ makes an approach to the same state of insensibility and inirritability, by the severe if not fatal wounds inflicted on it in the course of such experiments as are here alluded to, the valves of its lymphatic vessels make an approach also to the same state of flaccidity, and allow the fluids, whose course they should resist, to pass in any direction.

Exemplified.

The experiments, of a like kind, which have since M. Magendie's communications, been pursued in France by M. Fodere*, and in America by Dr. Lawrence and Dr. Contes†, are open to the same objection. They have been

* Journ. de Physiologie, Janv. 1823.

† Experiments to determine the absorbing power of the Veins and Lymphatics, Philadelphia Journ. No. 10.

Class VI. II. Absorbent system.

made under circumstances of ebbing vitality or excruciating pain, and a few of them on pieces of animal membrane removed from the parent body. It is admitted candidly, however, by the last two physiologists that the quill experiment of M. Magendie in most instances, though not in all, failed in their hands. Even this, however, is in every successful result referred by M. Fohmann to the anastomosing connexion which he has taken much pains to establish as existing between various veins and lymphatics, and which we have just adverted to.

Additional illustrations from Cruikshank:

This altered condition of many parts of the lymphatics in the dead body, was sufficiently shown by Mr. Cruikshank, in a course of numerous experiments made at Dr. Hunter's Museum, in the spring of 1773. The organs chiefly injected were the kidney, liver, and lungs of adult human subjects. In one case, he pushed his injection from the artery to the pelvis and ureter without any rupture of the vessels. In another he injected the pelvis and ureter *from the vein*, which he thought succeeded better than from the artery. In three different kidneys he injected from the uterus the tubuli uriniferi for a considerable length along the mamillæ; and in one case a number of the veins on the external surface of the kidney were evidently filled with the injection. In all these experiments, the colouring matter of the injection was vermillion. In numerous instances he filled the lymphatics of the lungs and liver with quicksilver; and from the lymphatics of the liver, he was able, twice in the adult, and once in the fetus, to fill the thoracic duct itself *.

and Mekel:

Dr. Mekel † had already shown the same facts by a similar train of experiments, instituted only a year or two before, and the conclusion he drew from them is in perfect coincidence with the explanation now offered. Dr. Mekel's experiments consisted in injecting mercury with great care, but considerable force, into various lymphatics, and minute secreting cavities; and he found that a direct

* Edin. Med. Com. i. p. 480.

† Nova Experimenta et Observationes de fibribus venarum et vasorum lymphaticorum in ductus, visceraque corporis humani, ejusdemque structuræ utilitate. 8vo.

Class VI. II. Absorbent system.

communication took place between such cavities and lymphatics, and the veins in immediate connexion with them: and hence, he contended, that the lymphatics and the veins are both of them absorbents under particular circumstances; the lymphatics acting ordinarily, and forming the usual channel for carrying off secreted fluids; and the veins acting extraordinarily, and supplying the place of the lymphatics where these are in a state of *morbid torpitude* or debility, or the cavity is overloaded. He traced this communication particularly in the breasts, in the liver, and in the bladder: and he thus accounts for the ready passage which bile finds into the blood, when the ductus choledochus is obstructed, as in jaundice; and the urinous fluid which is often thrown forth from the axillæ and other organs upon a suppression of the natural secretion.

General result.

It follows, therefore, that the experiments of M. Magendie, allowing them to be precisely narrated, are capable of explanation without abruptly overthrowing the established doctrines of preceding physiologists in the same line of pursuit: and we have still ample reason for believing that the economy of secretion and absorption is effected by two systems of vessels distinct from veins and arteries, and in a state of health continually holding a balance with each other.

To the same effect H. Mayo.

This doctrine is proof against impeachment, whether M. Magendie's experiments be believed or doubted; for still, to adopt the language of Mr. Herbert Mayo upon this subject, "the broad analogical argument advanced by the Hunters to establish the position that the lymphatics and lacteals form exclusively the absorbent system, remains unshaken. It must not be lost sight of that the entrance of any substance, raw and unassimilated, into the veins and arteries, is a very different occurrence from the conversion of the elements of the human body into lymph, and their subsequent re-admixture with the blood; and, again, that the refusal of the lacteals to take up milk or starch, does not prove that these vessels habitually absorb unchanged, and in addition to the chyle, such simple

CLASS VI. fluids as may be carried without detriment into the circulation."*

III. General effects produced by the action of these two systems on each other.

III. In different periods of life, many of the secretions vary considerably in their sensible properties, or relative quantity. Thus the bile of the fetus is sweet, and only acquires a bitter taste after birth. In infancy perspiration flows more profusely than during manhood: and the testes which secrete nothing before the age of puberty, at this time acquire activity, and again lose their power in old age.

Some secernent organs become a substitute for others:

Exemplified.

There are also many of the secernent organs that, in case of necessity, become a substitute for each other. Thus the perspirable matter of the skin when supprest by a sudden chill or any other cause, is often discharged by the kidneys; the catamenia by the lungs; and the serum accumulated in dropsies by the intestines.

The secretions are moreover very much affected and increased by any violent commotion of the system generally. In hysteria the flow of urine is greatly augmented, while the absorption of bile seems diminished; and hence the discharge is nearly colourless. In violent agitation of the mind, we have already observed that the juices of the stomach become acid; and sometimes the secernents of the skin, and sometimes those of the larger intestines, are stimulated into increased action; whence colliquative perspiration, looseness, or both. The heat and commotion of a fever will sometimes produce the same effect and sometimes a contrary; the skin being dry, parched, and pricking. And occasionally the dryness has been so considerable as to produce a sudden separation of the cuticle from the cutis; of which Mr. Gooch relates a singular instance in a patient who for several years, had once or twice a year an attack of fever accompanied with a peculiar itching of the skin, and particularly of the hands and wrists, that ended in a total separation of the cuticle from these parts: insomuch that it could easily be turned off from the wrist down to the fingers' ends so as to form a kind of cuticular glove†. The same dis-

* Anatomical and Physiological Commentaries, No. II. p. 44. 8vo. Lond. 1822.

† Medical and Chirurgical Observations, 8vo.

tinguished writer gives as singular an instance of the effects of solar heat upon the skin of another patient who had no sooner exposed himself to the direct rays of the sun, than his skin began to be affected with a sense of tickling, became violently hot, as stiff as leather, and as red as vermillion*. In this case we have an instance of highly excited action in the cutaneous excernents of both kinds, and of the formation of new blood-vessels under the cuticle; the more attenuate part of the fluid secreted being rapidly carried off, and hence the cutaneous integument converted into a coriaceous substance.

CLASS VI. III. General effects produced by the action of the secernents and absorbents on each other.

There are some parts of the body that waste and become renewed far more rapidly than others; the fat than the muscles; the muscles than the bones; and probably the bones than the skin; for the dye of the madder-root with which the bones become coloured when this root has for some time formed a part of the daily food of an animal, is carried off far sooner than the coloured lines of charcoal powder, ashes, soot, and the juices of various plants, when introduced into the substance of the skin by puncturing or tattooing it, a practice common among our sailors, and still more so, and carried to a far greater degree of perfection, among the inhabitants of the South-sea Islands.

Some parts of the body waste and become renewed faster than other parts.

It has been said, indeed †, that the disappearance of madder-colour from the bones, affords no proof that the phosphate of lime in which it was seated has itself been carried off at the same time; because the serum of the blood is found to have a stronger affinity for madder than the phosphate coloured by it; and hence will gradually attract and remove it, when the animal is no longer fed with the coloured food. The experiment, however, upon which this latter opinion is grounded, has not been hitherto conducted in such a manner as to be directly applicable to the question; and if it had been, it would afford no proof that a perpetual, though, in that case, a slower change than the madder would exhibit, is not taking place in the bones: nor are we driven to the

* Op. Citat. † Bernouilli, Diss. de Nutritione. Groning. 1669. 4to.

CLASS VI. III. General effects produced by the action of the secernents and absorbents on each other.

effects of madder dye upon their solid substance as the only foundation for this opinion; for there is scarcely a bone in the animal system which does not assume a different shape at one period of life compared with that at another period: a remark that peculiarly applies to the flat bones of the skeleton, and forms the chief cause of that wonderful change which the lower jaw experiences as the individual advances from middle life to old age, and which often gives a different character to the entire face *.

Hence loss of parts in consequence of fever or accidents reproduced.

It is from this mysterious power of reproduction appertaining to every part of the system, that we are so often able to renew the substance and function of parts that have been wasted by fevers or atrophy, or abruptly destroyed or lopped off by accident.

Every organ secretes for itself from the common pabulum of the blood.

In the progress of this general economy, every organ and part of the body secretes for itself the nutriment it requires, from the common pabulum of the blood which is conveyed to it, or from secretions which have already been obtained from the blood, and deposited in surrounding cavities, as fat, gelatin, and lymph. And it is probable that the several organs of secretion, like the eye, the ear, and the other distinct organs of sense, are peculiarly affected by peculiar stimulants and excited to some diversity of sensation.

Many organs peculiarly affected by peculiar stimulants, and perhaps excited to different sensations.

In Germany, this idea has been pursued so far as in some hypotheses, and particularly that of M. Hubner†, to lay a foundation for the doctrine of a sixth sense, to which, as we observed on a former occasion‡, has been given the name of *selbstgefühl* or *gemeingefühl*, "self-feeling", or "general-feeling". The sensations, however, we are at present alluding to, are not so much general or those of the whole self, as particular or limited to the organs in which they originate; and seem rather to be a result of different modifications of the fluid that causes the

Gemeingefühl of the German writers what.

* Gibson, Manchester Memoirs, Vol. i. 533.

† Comment. de. Cœnesthesi, 1794.

‡ Vol. v. Physiol. Proem.

common sense of touch, than produced by distinct sensorial secretions. In most parts of the system these modifications are so inconsiderable as to elude our notice, but in others we have the fullest proof of such an effect; for we see the stomach evincing a sense of hunger, the fauces of thirst, the genital organs of venereal orgasm. And in like manner we find the bladder stimulated by cantharides, and the intestinal canal by purgatives; and we may hence conjecture that every other part of the system, where any kind of secretion is going forwards, is endowed with a like peculiarity of irritability and sensibility, though not sufficiently keen to attract our attention.

Class VI. III. General effects produced by the action of the secernents and absorbents on each other.

Proofs of peculiar organic sensations and irritations.

It is hence we meet with that surprising variety of secretions which are furnished not only by different, but even by the same animal in different parts of the body. Hence sugar is secreted by the stomach, and sometimes by the kidneys; sulphur by the brain; wax by the ears; lime by the salivary glands, the secretories of the bones, and, in a state of disease, by the lungs, the kidneys, the arteries, and the exhalants of the skin; milk by the breasts; semen by the testes; the menstrual fluid by the uterus: urine by the kidneys; bile by the liver; muriate of soda by the secernents of almost every organ; and sweat from every part of the surface.

Variety of secretions furnished by the same animal in different parts: as sugar, sulphur, lime, milk, urine, bile, muriate of soda:

Hence some animals, as the bee, secrete honey; others, as the coccus *ilicis*, a large store of wax; others, as the viper and scorpion, gum which is the vehicle of their poison: others thread, as the spider and some species of slug; and many silk, as the silk worm and the pinna, or nacre, whence Reamur denominates the pinna the sea-silk-worm: it is common to some of the Italian coasts, and its silky beard or byssus is worked at Palermo into very beautiful silk stuffs. There are great numbers of worms, insects, and fishes that secrete a very pure, and some of them a very strong phosphorescent light, so as, in some regions, to enkindle the sea, and in others the sky, into a bright blaze at night. Many animals secrete air; man himself seems to do so under certain circumstances,

honey, wax, silk, phosphorescent light,

CLASS VI. III. General effects produced by the action of the secernents and absorbents on each other.

but fishes of various kinds more largely, as those furnished with air-bladders, which they fill or exhaust at pleasure, and the sepia or cuttle-fish, with numerous other sea-worms; and by this power they raise or sink themselves as they have occasion. The cuttle-fish secretes also a natural ink, which it evacuates when pursued by an enemy, and thus converts it into an instrument of defence; for, by blackening the water all around, it obtains a sufficient concealment and easily effects its escape. Other animals, and these also chiefly fishes, secrete a very large portion of electric matter, so as to convert their bodies into a powerful battery. The torpedo-ray was well-known by the Romans to possess this extraordinary power: and the gymnotus *electricus* (electric-eel) has since been discovered to possess it in a much larger proportion. The genus tetradon in one species secretes an electric fluid, in another an irritating fluid that stings the hand that touches it, and in a third a poisonous matter diffused through the whole of its flesh.

air,

ink,

electricity.

Secretions among plants equally diversified.

From the same cause we meet with as great and innumerable a variety of secretions among plants, as camphors, gums, balsams, resins: and, as in animals, we often meet with very different secretions, in very different parts of the same plant. Thus the mimosa *nilotica* secerns from its roots a fluid as offensive as that of assafœtida; in the sap of its stem an astringent acid; its glands give forth gum arabic; and its flower an odour of a very grateful fragrance: while the MILK-TREE or COW-TREE, the *arbol de lache*, or *palo de vaca* of South America, overflows with nutritious milk from every part. This is one of the many singular plants noticed by M. Humboldt in his voyage to the equinoctial regions. It is a native of Venesuela, and belongs to the natural family of the sapotæ; and its juice, in strict correspondence with its name, is said to possess almost all the properties of cow's milk. M. Humboldt visited the district where it was reported to grow, and found the account true; but tells us that it is rather more viscous than cow's milk, and has a slight balsamic taste. He drank it plentifully in the evening and early in the morning without any unpleasant effects; and was told that, when

Singular exemplification in the milk-tree.

in season, the working people use it with their cassava bread, and always fatten upon it *.

Class VI. III. General effects produced by the action of the secernents and absorbents on each other.

This subject is highly interesting, and might be extended to volumes, but we are already digressing too far. There is no part of the body in which the process of secretion is not going forward: we trace it, and consequently the fabric which gives rise to it, in the parenchyma or intermediate substance of organs, in their internal surfaces and outlets, and on the external surface of the entire frame: thus forming three divisions of prominent distinction, both in respect to locality and to the diseases which relate to them. It is on these divisions, that the orders of the present class are founded.

No part of an organized substance in which secretion does not take place.

* Annales de Chimie et de Physique, Juin 1823. Tom. XXIII. 19.

CLASS VI.

ECCRITICA.

ORDER I.

MESOTICA.

Diseases affecting the Parenchyma.

PRAVITY IN THE QUANTITY OR QUALITY OF THE INTERMEDIATE OR CONNECTING SUBSTANCE OF ORGANS; WITHOUT INFLAMMATION, FEVER, OR OTHER DERANGEMENT OF THE GENERAL HEALTH.

Class VI. Order I. Origin of ordinal term.

THE classic term ECCRITICA is a derivative from *ἐκκρίνω*, "secerno", "exhaurio", "to secern or strain off", "to drain or exhaust", and is preferred by the author to any other derivative which *κρίνω*, its primitive, affords, as equally applicable to the two systems of vessels that enter into the general and important economy illustrated in the preceding Proem. The ordinal term MESOTICA is derived from *μέσος*, "medius"; for which PARENCHYMATICA might have been substituted, but that there are two objections to the use of the latter: the first is that *παρὰ* is here employed in a different sense from its general signification in the system before us, which is that of "malè", or "perperàm",—instead of *per* or *penitus*, its real meaning in parenchyma; and, consequently, the double signification would trench upon that simplicity and uniformity

which it is the direct object of the present nomenclature to maintain. The second objection is, that the term parenchyma (παρέγχυμα) is formed upon a false hypothesis invented by Erasistratus, who first employed the term and held that the common mass or interior substance of a viscus is produced by concreted blood, strained off through the pores of the blood-vessels which enter into its general structure or membranes.

CLASS VI. ORDER I. Mesotica. Diseases affecting the parenchyma.

Parenchyma in what sense used by Erasistratus.

The order embraces the five following genera:

I.	POLYSARCIA.	CORPULENCY.
II.	EMPHYMA.	TUMOUR.
III.	PAROSTIA.	MIS-OSSIFICATION.
IV.	CYRTOSIS.	CONTORTION OF THE BONES.
V.	OSTHEXIA.	OSTHEXY.

GENUS I.

POLYSARCIA.

Corpulency.

FIRM AND UNWIELDY BULKINESS OF THE BODY OR ITS MEMBERS, FROM AN ENLARGEMENT OF NATURAL PARTS.

GEN. I. Origin of generic term.

POLYSARCIA from πολύσαρκος, "carnosus" "carne abundans", imports bulkiness from any morbid increase of natural parts, whether fleshy or adipose; and the present genus is co-extensive with this latitude of interpretation. In medical history, however, we know of no morbid increase of this kind, otherwise than local, except from an accumulation of fat; and on this account Dr. Swediaur has somewhat unnecessarily substituted the name of polypiotes* for that of polysarcia. For the present, the genus is limited to a single species, as follows:

1. POLYSARCIA ADIPOSA. OBESITY.

* Nov. Nosol. Meth. Syst. Vol. II. 121.

SPECIES I.

POLYSARCIA ADIPOSA.

Obesity.

BULKINESS FROM A SUPERABUNDANT ACCUMULATION OF FAT.

THIS species admits of two varieties. For it may be GEN. I. SPEC. I.

α Generalis. General obesity.	Extending over the body and limbs.
β Splanchnica. Splanchnic obesity.	Confined to the organs or integuments of the trunk.

α P. adiposa generalis. General obesity.

In man and other animals fat is collected in the follicles of the cellular membrane, accumulated in the groins, axillæ, orbits, cheeks, and chin; the breasts, loins, nates and limbs of women; in the belly, omentum, around the kidneys, and the blood-vessels. It is likewise secreted on the surface of the skin, which it protects from acrid substances, and where it sometimes concretes, often from want of cleanliness, or being intermixed with hardened mucus, in the shape of minute worms, forming the VARUS *punctatus*, or maggot-pimple, of the third Order of the present Class. When the perspiration becomes profuse in consequence of hard walking or other exercise, a certain portion of animal oil is dissolved in this fluid which makes the chief, perhaps the only difference between the matter of perspiration and that of sweat. Fat is, hence, accumulated by diminished perspiration; as it is also by the nature of the aliments fed on, and from idiosyncrasy. It is the basis of steatomatous tumours, and contains the sebacic acid which acts readily on many metals as lead, copper, and iron.

Fat where accumulated in man.

Dissolved by perspiration.

GEN. I. SPEC. I. α P. adiposa generalis. General obesity.

It is rarely to be found in the skin, in the brain, the ball of the eye, the larynx, the trachea, the cellular tissue of the eye-lids, the ears, lungs, liver, spleen, kidneys, stomach or uterus. Its grand repository is the cellular texture; but it is not lodged in the cells of this texture indiscriminately, but in those of a particular kind, and which do not, according to Dr. W. Hunter, communicate with each other, as those which contain air in emphysema or water in anasarca: in consequenee of which, this celebrated physiologist has distinguished the former by the name of adipose, and the latter by that of reticulated, cells.

Adipose cells of Hunter. Reticulated cells.

In some fishes diffused over the whole body.

In many fishes, as the salmon and herring, it is diffused over the whole body, as though the body were steeped in it. In other genera of fishes, as the ray, it is found in the liver alone. In some few, as the whale, it appears in the form of flakes, and is called blubber, which sometimes amounts to the enormous quantity of three tons in an individual.

In others collected in the liver alone. Blubber of whales, what.

Fat a bad conductor of heat and warmth, hence fat persons often too hot, produced by oiling the body.

Other uses of fat in hunger re-absorbed for food.

Fat is a bad conductor of heat; and hence, one of its uses is that of keeping the body warm; on which account those who are incumbered with fat perspire with but a small quantity of exercise, and are almost always too hot. We may hence also see why the warmth of the body is retained by oiling the surface, or wearing oiled skin over it. Fat is also of considerable use in lubricating the solids, and facilitating their movements; in preventing excessive sensibility; while by equally distending the skin, it contributes, when not in excess, to the beauty of the person. In cases of extreme hunger, or of abstinence from food, fat is re-absorbed and carried to the blood-vessels; and from an experiment of Dr. Stark *, it appears to be more capable of supplying the waste of the body than any sort of ordinary food. And hence, there is much probability in the conjecture of Lyonet that insects, destitute of blood, derive their chief nourishment from the fat in which they abound †.

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* Hewson, II. p. 151.

† Tr. Anat. de la Chenille qui rouge le Bois de Saule, pp. 488. 483, et seq.

With the exception, however, of the earth of the bones, it is the least animalised of all the substances that enter into the composition of the animal frame. Chemically examined pure fat contains no azote, which is the peculiar characteristic of animalization; it has also little oxygene, consisting chiefly, indeed, of hydrogene and carbone. "I do not consider", says Mr. John Hunter, "either the fat or the earth of bones, as a part of the animal: they are not animal matter: they have no action within themselves: they have not the principle of life."* It is of late formation in the fetus: scarcely any trace of its existence is discoverable before the fifth month from conception.

Gen. I. Spec. I. α P. adiposa generalis. General obesity. Chemical properties. Formed late in the fetus.

The mode of its production is still a matter of controversy. By some it has been supposed to be secreted by peculiar glands, by others merely to transude from exhalant arteries of a peculiar kind. Sir Everard Home has lately started another hypothesis, which is at least highly ingenious and plausibly supported. He has attempted to prove that the fat of animals is produced in the larger intestines (especially the colon) out of the recrement of the food and the bile, and afterwards conveyed into the system generally by channels yet undiscovered to contribute towards the common growth of the system, especially in early life †. And some arguments in favour of this opinion may be drawn from the nature of that species of ENTEROLITHUS, to which in the present system is given the name of scybalum, and from the observations with which it has been illustrated ‡.

Mode of production uncertain, supposed to be secreted by peculiar glands: or to transude from exhalant arteries. Conjecture of Home.

Sauvages was desirous of establishing a standard weight of healthy pinguescence, but the attempt is idle, since it varies in almost every individual. The fat of the human frame usually averages about a twentieth part of the whole, but has sometimes amounted to half or even to four-fifths §.

Average of weight in healthy subjects.

In general obesity, or the variety of adipose polysarcia

In general obesity, bulk

* On Blood, p. 440. † Phil. Trans. for 1813. p. 158, and 1816, p. 301.
‡ Vol. I. p. 302.
§ J. P. Frank, De. Cur. Morb. Hom. Epit. Tom. VI. 8vo. 1821.

Gen. I. Spec. I. a P. adipose generalis.

General obesity.

of the body sometimes enormous. Examples.

immediately before us, the bulk of the body has sometimes been enormous. It has amounted to five hundred, and nearly six hundred pounds in many instances. Bright of Maldon, weighed seven hundred and twenty-eight pounds; Lambert of Leicester, seven hundred and thirty-nine pounds a little before his death, which was in the fortieth year of his age. The German journals give us examples of men who weighed eight hundred pounds. Yet the Philosophical Transactions furnish perhaps a still more extraordinary example of this disease in a girl that weighed two hundred and fifty-six pounds though only four years old *.

In some persons produced from foods of every kind: and more largely from a bread than a meat diet. Sometimes deposited with peculiar rapidity.

Where a powerful adipose diathesis prevails, fat is often produced, whatever be the food fed upon. Ale and porter drank to excess, are, perhaps, the most ordinary means; Akermann gives proofs of the same effect from spirits †: and in the Ephemera of Natural Curiosities is the case of an individual who generated fat faster, and in larger quantities, upon bread than upon a meat diet ‡. Indolence and an indulgence in sleep seem necessary, however, in every instance.

Ease of body and mind indispensable for its formation, with a slight increase of sensorial power. Exemplified.

In these cases the animal oil is sometimes secreted and deposited in the cellular membrane almost as rapidly as water in anasarca: on which account obesity has by some writers been called, and correctly enough, a dropsy of fat. It is in fact under particular circumstances the soonest formed and deposited, and the soonest absorbed of all the animal secretions. For its formation, however, ease of body and mind are indispensable, and perhaps a slight increase in the flow of sensorial power beyond the common standard, or what has hitherto been the standard of the individual. It is on this account those are apt to become fat who suddenly relinquish a habit of hard exercise, either of body or mind, for a life of quiet enjoyment, provided the change be not sufficient to interfere with the general health. And for the same reason, as we have already

* N. 185. † Baldinger N. Mag. B. VI. p. 489.
‡ Dec. III. Ann. VII. VIII. p. 138.

observed, animals which are castrated, and females that do not breed, or who have just ceased to breed, grow fat and corpulent with equal ease; the sensorial power intended for the use of the sexual organs, and to be expended at a particular outlet, being hereby thrown back upon the system generally, and transferred to the adipose secernents. And hence, also, the cause of that increase of bulk which most persons experience about the middle of life, when the muscles having attained their utmost firmness, the stature its full height, and the sexual economy its perfection, there is a less demand for the ordinary supply of sensorial power than has hitherto been made, and the surplus is expended in broadening and rounding the general frame by filling up the cells of the adipose membrane with animal oil, instead of elongating it.

Gen. I. Spec. I. a P. adiposa generalis. General obesity.

For all this, however, there must be an ease of body and mind approaching to cheerfulness; on which account plumpness and cheerfulness, or good humour, are commonly associated in our ideas: for pain and anxiety, that wear away the corporeal substance generally, make their first inroad on the animal oil, and empty the cells of the adipose membrane before they produce any manifest effect on the muscular fibres, or, as these are collectively termed, the flesh; upon which subject we have already touched in discussing several of the species of the genus MARASMUS *.

Plumpness and cheerfulness why associated in our ideas.

Hence the fat becomes absorbed or carried off, as it is secerned and deposited more readily than any other animal substance. By sweating, horse-riding, and a spare diet, a Newmarket jockey has not unfrequently reduced himself a stone and a half in a week or ten days †: and a plump widow has, by weeping, become a skeleton in a month or two.

Fat easily carried off, and by what means. Illustrated.

A moderate increase in the secretion of animal oil rather adds to the facility of motion, and improves the beauty of the person. But if it much exceed this, the play of these different organs upon each other is impeded, the calibre

Evils resulting from a large increase of fat.

* Vol. III. Cl. III. Ord. IV. Gen. III. opening Remarks.

† Code of Health, by Sir John Sinclair, &c.

GEN. I. SPEC. I. α P. adiposa generalis. General obesity.

of the blood-vessels is constricted, the pulse oppressed, the breathing laborious, there is an accumulation of blood in the head or heart, a general tendency to palpitation or drowsiness, and a perpetual danger of apoplexy.

β P. adiposa splanchnica. Splanchnic obesity.

In SPLANCHNIC OBESITY, the encumbered viscera are more or less buried in beds of fat, and usually accompanied with scirrhous affections; making an approach to some species or other of PARABYSMA, as described in the first Class and second Order of the present system *. We have observed that general obesity may be regarded as a dropsy of animal oil instead of a dropsy of water. And, as the latter disease is sometimes universal and runs through the whole of the cellular substance, and at others local, and confined to particular cavities, the former also exhibits both these modifications; and in the variety before us, is confined to individual organs.

Fat, like dropsy, may be confined to particular organs.

Omentum mostly overloaded. Pot-belly.

It most generally overloads the omentum, and gives that projecting rotundity to the abdomen which is vulgarly distinguished by the name of POT-BELLY, and is well described by Prince Henry in his address to Falstaff, as "a huge hill of flesh,"†—"a globe of sinful continents."‡.

Animal oil is more apt to accumulate in the abdominal viscera than on the surface, and hence while these organs always participate in a general obesity, it is not to be wondered at that they should sometimes be loaded alone.

Scirrhosities as concomitant with fat, how accounted for.

As it has been stated that freedom from pain is necessary to its accumulation, it may, perhaps, be a matter of surprise that scirrhosities should be a concomitant. But this morbid condition takes place so slowly as to produce little or no local disquiet; while the small degree of increased irritability that accompanies their formation, for a reason already assigned, tends rather to promote the morbid deposit than to prevent it.

Mode of treatment in general obesity.

In attempting a cure of the general disease, the first step is to avoid all the common and more obvious causes as much as possible. Hence, as a life of indolence and

* Vol. I. p. 424. † Henry IV. Part I. Act II. ‡ Id. Part II. Act II.

indulgence in eating and drinking is highly contributory to obesity, the remedial treatment should consist in the use of severe, regular, and habitual exercise, a hard bed, little sleep, and dry and scanty food, derived from vegetables alone, except where, from a singularity of constitution, farinaceous food is found to be a chief source of obesity. And where these are insufficient, we may have recourse to frequent venesection and such medicines as freely evacuate the fluids whether by the bowels or the skin. And, for the same reason, sialagogues, as chewed tobacco *, and mercury, have occasionally been used with success †.

Success of a spare diet and diminished sleep exemplified in Wood of Billericay.

Generally speaking, however, the diet and regimen just recommended with a spare allowance of water will be sufficient to bring down the highest degree of adipose corpulency. Of this we have a striking example in the history of Mr. Wood, the noted miller of Billericay in Essex. Born of intemperate parents, he was accustomed to indulge himself in excessive eating, drinking, and indolence, till, in the forty-fourth year of his age, he became unweildy from his bulk, was almost suffocated, laboured under very ill health from indigestion, and was subject to fits of gout and epilepsy. Fortunately a friend pointed out to him the Life of Cornaro: and he instantly determined to take Cornaro for his model, and if necessary to surpass his abridgements. With great prudence, however, he made his change from a highly superfluous to a very spare diet gradually: first diminishing his ale to a pint a day, and using a much smaller portion of animal food; till, at length, finding the plan work wonders as well in his renewed vigour of mind as of body, he limited himself to a diet of simple pudding made of sea-biscuit, flour, and skimmed milk, of which he allowed himself a pound and a half about four or five o'clock in the morning for his breakfast, and the same quantity at noon for his dinner. Besides this he took nothing either of solids or fluids, for he had at length brought himself to abstain, even from water; and

* Borelli, Cent. II. Obs. II.

† Bartholin, Act. Hafn. I. Obs. 74. Bonet, Sepulchr. Lib. II. Sect. ii. Obs. 36. Appx.

Gen. I. Spec. I. Polysarcia adiposa. Obesity.

found himself easier without it. He went to bed about eight or nine o'clock, rarely slept for more than five or six hours, and hence rose usually at one or two in the morning, and employed himself in laborious exercise of some kind or other, till the time of his breakfast. And by this regimen he reduced himself to the condition of a middle-sized man of firm flesh, well coloured complexion, and sound health*. A like plan, or rather something approaching it, the present author once recommended to Mr. Lambert of Leicester on being consulted concerning the state of his health. But either he had not courage enough to enter upon it, or did not chuse to relinquish the profit obtained by making a show of himself in this metropolis. He made his choice, but it was a fatal one, for he fell a sacrifice to it in less than three years afterwards.

Lambert of Leicester.

But the same regimen pernicious where employed injudiciously.

When the reduced treatment thus recommended has been unnecessarily and injudiciously entered upon and followed up with pertinacity, as in cases where young females are desirous of becoming celebrated for an elegant slenderness of form, it has often been productive of a serious, and occasionally of a fatal result. Professor Frank gives a striking example of this in a young lady, who, for the above purpose, had for nearly a twelvemonth greatly diminished her daily food, used severe horse-exercise, and drank every day a large quantity of vinegar. She at this time was labouring under dyspepsy, hysteria, and a dry cough, with a pungent pain in her side, hectic sweats, and occasionally purulent expectoration: she was pronounced in the last stage of consumption, and her life was entirely despaired of. Frank, however, succeeded in averting this event by the gradual renewal of a more nutritious diet, and the use of tonics†.

In local obesity.

The local disease is for the most part far less manageable: but it has sometimes yielded to a steady perseverance in the above plan, in connection with active purgatives, and the application of mercurial ointment to the vicinity of the organ affected; or a free use of calomel in the form of pills.

* Med. Trans. Vol. II. Art. XVII.

† De Cur. Hom. Morb. Epit. Tom. VI. Lib. VI. 8vo. Viennæ 1820.

GENUS II.

EMPHYMA.

Tumour.

GLOMERATION IN THE SUBSTANCE OF ORGANS FROM THE PRODUCTION OF NEW AND ADSCITITIOUS MATTER: SENSATION DULL, GROWTH SLUGGISH.

Gen. II. Generic term explained.

PHYMA, in the present system, is limited to cutaneous tumours, or tubers, accompanied with inflammation, as already explained in Class III. Order II*. EMPHYMA imports, in contradistinction to phyma, a tumour originating below the integuments, and unaccompanied with inflammation, at least in its commencement: while ECPHYMA in Order III. of the present Class, imports, in contradistinction to both, mere superficial extuberances, confined to the integuments alone. The term *glomeration*, or "heaping into a ball", in the generic definition, is preferred to the more common terms *protuberance* or *extuberance*, because some tumours or emphymata lie so deeply seated below the integuments as to produce no prominence whatever, and are only discoverable by the touch.

The species of this Order, and much of their general character and arrangement, are taken with a few variations from Mr. Abernethy's valuable Tract on Tumours.

Subject appertains rather to the department of surgery than of medicine:

The subject, indeed, though of a mixed description, is commonly regarded as appertaining rather to the province of surgery than of medicine, from the tendency which most tumours seated on or near the surface have to open externally, or to call for some manual operation. In a general system of the healing art, however, it is necessary

* Vol. II. p. 334.

Gen. II. Emphyma. Tumour.

yet necessary to be noticed in a general system of practice.

to notice them, though it is not the author's intention to dwell upon them at length; but rather to refer the reader, from the few hints he is about to pursue, to Dr. Baron's and Mr. Abernethy's works*, as the best comments upon them which he can consult: widely differing indeed in their views of the origin of such extraneous growths, but each drawn up with great candour, and appealing to a host of indisputable facts, as we have already had occasion to observe when treating of hepatic parabysma †, and tubercular phthisis ‡, to which pages the reader is referred for an account of the general origin and progress of morbid growths, and other physiological illustrations appertaining to them.

The species embraced by the genus EMPHYMA are the following:

1.	EMPHYMA SARCOMA.	SARCOMATOUS TUMOUR.
2.	——— ENCYSTIS.	ENCYSTED TUMOUR. WEN.
3.	——— EXOSTOSIS.	BONY TUMOUR.

SPECIES I.

EMPHYMA SARCOMA.

Sarcomatous Tumour.

TUMOUR IMMOVEABLE; FLESHY AND FIRM TO THE TOUCH.

Gen. II. Spec. I.

THE varieties of this species, modified in respect to structure and situation, are very numerous. The following, distinguished by the former quality, are chiefly worthy of notice:

α Carnosum. Fleshy tumour. — Vascular throughout: texture simple: when bulky map-

* Observations on Tumours. † Class I. Ord. II. Gen. IV. Spec. I.
‡ Class III. Ord. IV. Gen. III. Spec. V.

ped on the surface with arborescent veins. Found over the body and limbs generally.

β Adiposum.
Adipose tumour.
Suetty throughout: inclosed in a thin capsule of condensed cellular substance: connected by minute vessels. Found chiefly in the fore and back part of the trunk.

γ Pancreaticum.
Pancreatic tumour.
Tumour in irregular masses: connected by a loose fibrous substance, like the irregular masses of the pancreas. Found occasionally in the cellular substance, but more usually in convoluted glands: chiefly in the female breast.

δ Cellulosum.
Cystose tumour.
Derbyshire-neck.
Tumour cellulose or cystose: cells oval, currant-sized or grape-sized, containing a serous fluid; sometimes caseous. Found generally, but mostly in the thyroid gland, testis, and ovarium.

ε Scirrhosum.
Scirrhous tumour.
Hard, rigid, vascular, infarction of glandular follicles; indolent, insentient, glabrous; sometimes shrinking and becoming more indurated. Found in glandular structures, chiefly those of the secernent system.

ζ Mammarium.
Mammary tumour.
Tumour of the colour, and assuming the texture of the mammary gland: dense and whitish: sometimes softer

GEN. II. SPEC. I. Emphyma Sarcoma. Sarcomatous tumour.

and brownish: often producing, on extirpation, a malignant ulcer with indurated edges. Found in various parts of the body and limbs.

η Tuberculosum. Tuberculous tumour. Formed of firm, round, and clustering tubercles; pea-sized or bean-sized; yellowish or brownish-red; when large, disposed to ulcerate, and produce a painful, malignant, and often fatal sore. Found chiefly in the lymphatic glands of the neck: often simultaneously in other glands and organs.

θ Medullare. Medullary tumour. Of a pulpy consistence and brain-like appearance; whitish; sometimes reddish-brown; when large, apt to ulcerate, and produce a sloughing, bleeding, and highly dangerous, sore. Found in different parts: chiefly in the testes: at times propagating itself along the absorbent vessels to adjoining organs.

General remarks. All these grow occasionally to an enormous size, particularly the sarcomatous, the adipose, and the scirrhous. They are all produced by some increased action or irritation in the part in which they occur, the cause of which it is rarely in our power to ascertain. In general, they commence slowly and imperceptibly, and are seldom accompanied with much pain whatever be the extent of their growth. They are all more or less organized through the whole of their structure, by which they are particularly distinguished from those of the next species: and

it is highly probable that most of the irritating causes which produce any one, produce all the rest, the modification depending on the difference of site, habit, idiosyncrasy, or local misaffection. In their formation, however, there seems to be a greater tendency to inflammation, and especially adhesive inflammation in the fleshy tumour, or proper sarcoma, than in any of the rest; and, from the more perfect elaboration of its fabric, there is no other form that maintains itself so firmly, or is removed, excepting by excision, with so much difficulty. The origin of the adipose may, in some degree, be understood from the remark we have offered under the last genus, and particularly under its second variety.

GEN. II. SPEC. I. Emphyma. Sarcoma. Sarcomatous tumour.

Some causes often common to all: the difference in effect produced by habit, idiosyncrasy, or local influence.

Peculiar character of sarcoma.

The scirrhous tumour, when irritated, has a general tendency to run into a cancerous ulcer: for which it is not always easy to account, excepting where there happens to be an hereditary taint in the blood: for neither the tumour nor its ordinary result, as we observed when treating of carcinus, is by any means confined to a glandular or to any particular structure, though the secernent glands constitute its most common seat. In Mr. Abernethy's Treatise, the place of the scirrhous tumour, however, is occupied by another to which he gives the name of carcinoma, which, in the present system, is regarded as a modification of the scirrhus, degenerated, and ulcerated mostly by a cancerous diathesis; and in such case appertaining to CARCINUS, already described in the fourth Order of the third Class; or, where no such diathesis is present, belonging to the same Class and Order under the genus and species ULCUS *vitiosum*.

Peculiar character of scirrhus.

The scirrhous tumour is, in fact, the most important of the whole tribe, not only as leading, under peculiar circumstances, and in particular habits, to the most fatal result, but as being more common to every organ than any other variety whatever: and, in a few instances, common to almost every organ collectively or at the same time*.

* Henggen, Museum der Heilkunde, Baud. II. p. 111.

GEN. II. SPEC. I. Emphyma Sarcoma. Sarcomatous tumour.

The other varieties are looser and more spongy, and contain far less of living power: in consequence of which they are more easily disposed to ulcerate, and, when in this condition, often spread and become sordid and malignant from debility alone.

Other varieties looser and more spongy, and contain less living power.

Most of the varieties occasionally grow to an enormous size. Exemplified in sarcoma.

We have said that the tumours of this species will sometimes grow to a vast and preposterous bulk. This is particularly the case with the first variety or fleshy sarcoma, and more especially when it seats itself in the scrotum forming the SARCOCELE, or HERNIA CARNOSA of authors. Negroes are particularly subject to this affection, and in one instance the tumour weighed fifty pounds*. Swediaur indeed affirms that they have occasionally weighed a hundred pounds†. The skin is here thick, rugose, of a dirty yellow, often covered with ulcerations that ooze a fetid ichor. It is said that among negroes the disease is more common to the right testicle than to the left. Stoll, however, has asserted directly the contrary so far as relates to Europeans, and his remarks are supported by the observations of Pfeffinger and Friedius. He has moreover generalised his assertion by contending that the left ovary of women as well as the left testicle of men is more subject to diseases of all kinds than the right‡. Baron Larrey describes a sarcoma of the labia among tropical women of the same nature as the scrotal sarcoma among men§.

Sarcocele, or hernia carnosa, what.

Female sarcocele, what.

Exemplified in adipose tumour:

The adipose tumour is also frequently of a very large magnitude. Mr. Abernethy gives an instance of one on the thigh that weighed fifteen pounds after extirpation‖, and M. Leske of another of the weight of nineteen pounds dissected from the face¶. In the Journal de

* Schotte, Phil. Trans. Vol. LXXIII. 1783.

† Nov. Nosol. Meth. Syst. II. 529.

‡ Nov. Act. Physico-Med. Acad. Nat. Cur. Tom. IV. Norim.

§ Relat. Hist. et Chirurg. de l'Expedition de l'Armée en Egypte, &c. 8vo. Paris, 1803.

‖ On Tumours, p. 31. 8vo. 1814.

¶ Auserlesene Abhandlungen, &c. Leipzig, 1774, 8vo.

Medicine, is an account of a third, that weighed not less than forty-two pounds *.

Gen. II. Spec. I. Emphyma Sarcoma. Sarcomatous tumour.

The bulk of the scirrhous tumour, however, and especially when seated on the breast, has often equalled and sometimes exceeded the largest of these. M. Leske, indeed, gives a case, in which a tumour of this kind was amputated from the breast, of the enormous weight of sixty-four pounds, that had been increasing for years, and was at last so oppressive as to endanger the patient's life †.

and in scirrhous tumour.

Bronchocele, Botium, Goitre, or Derbyshire-neck. Frequently found in Derbyshire;

The most unsightly, however, of the whole, is the SARCOMA *cellulosum*, when it fixes in the thyroid gland; in which situation it is often called Botium, Bronchocele, or *Goitre*; and, in our own vernacular language, DERBYSHIRE-NECK, from an idea, of considerable antiquity, that the inhabitants of that county are more subject to it than those of other districts, an idea that does not seem to be without foundation; for in a visit which the author lately made to Matlock he found a much larger number of the poor affected with this disease than he had ever seen before, while the rich escaped; and he found also that by far the greater part of those who were labouring under it, were not only exposed to all the ordinary evils of poverty, but derived their chief diet from that indigestible and innutritive substance, the Derbyshire *oaten cake*, which is probably the chief cause of all the glandular and parabysmic enlargements which are so common to that quarter. We shall see when treating of cretinism that a like innutritive diet is one of the most obvious causes of the same appearance as a concomitant in those countries in which cretinism is most frequent. The cells in this protuberance are very numerous, the fluid often viscid, and sometimes gelatinous; so that, when the tumour bursts, as it occasionally does, spontaneously, the contained fluid is apt to drain away very slowly, and has ulcerated with a large sloughy surface without having half evacuated its contents.

its ordinary cause explained.

* Tom. xx. p. 551. † Op. citat.

GEN. II. SPEC. I. Emphyma Sarcoma. Sarcomatous tumour.

Most of these may be frequently repressed or resolved if discovered and attended to in their origin. The fleshy, which always commences with some degree of inflammatory action, should be vigorously attacked with leeches, repeated as often as may be necessary, and afterwards with astringents or alterants, as the dilute solution of the acetate of lead, for the former purpose, and the mercurial emplaster for the latter. An issue or seton in the vicinity will also frequently assist by producing a transfer of action. If this plan do not succeed the tumour should be extirpated by the knife without loss of time, or allowing it to acquire any considerable bulk. Baron Larry affirms that he has often removed by the knife the largest scrotal sarcomas or sarcoceles, and this with very little pain, while the wound has readily healed afterwards *.

General mode of treatment.

May be resolved frequently in their origin.

Treatment of scirrhous tumour.

The scirrhous tumour is usually indicative of weak, instead of entonic, action in the organ in which it makes its appearance; in consequence of which the lymphatics absorb only the more attenuate part of the secerned fluids, and leave the grosser which thicken and harden in the parenchyma. There is little irritation at first, but as the distention and obduration increase, the part becomes stimulated, and, as we have already observed, in a scrofulous cancerous diathesis is apt to call the latent seminium into action; when the hardened tumour degenerates into a foul ulcer. In an early stage they have yielded to local irritants, which have a tendency to excite an increased action, and of a new kind, and hence the advantage of mercurial applications, or emplasters of the gum-resins: and particularly the emplaster of ammoniac with quicksilver which unites the two, and is an admirable preparation. Where, indeed, the irritation is already considerable the more direct of these stimulants must be abstained from, and the inirritants and narcotics may be had recourse to with more advantage, as the preparations

* Relat. Hist. et Chirurg. de l'Expedition de l'Armée en Egypte et en Syrie. 8vo. Paris, 1803.

of lead, acids of almost every kind, and cataplasms of hemlock, henbane, bella-donna, or potatoe-leaves. But here also the best and most effectual relief is to be had in extirpation; and the actual cautery as employed by M. Maunoir * will often be found more effectual and even produce less pain than the knife.

GEN. II. SPEC. I. Emphyma Sarcoma. Sarcomatous tumour. Treatment.

Many of these varieties of tumours, on their first appearance, may be repelled by stimulant applications in conjunction with a steady pressure wherever this can be applied; for, with the exception of the first, there is little tendency to inflammation in any of them, and, in the greater number, a decided weakness of the living power. They are often, indeed, connected with constitutional debility, and hence appear simultaneously in different parts of the body. Extirpation in this case is useless: at least till the general frame is invigorated by a tonic regimen and course of medicines. And even then from the peculiar seat or size of the tumour it will not always be found adviseable.

Little tendency to inflammation in any of the varieties: and hence stimulant applications with pressure are often serviceable.

This is particularly true in that variety of the cystous sarcoma which is denominated BRONCHOCELE, GOITRE, or DERBYSHIRE-NECK; and which usually proceeds from an enlargement of the thyroid gland. It is mostly found in females, and in its commencement the patient and her friends always turn a deaf ear to the use of the knife, under a hope that it may yield to a course of external and internal medicine: nor is the tumour, indeed, at all times sufficiently defined from the first for any effective use of chirurgical means †. It originates without pain or any discoloration of the skin, and presents a general prominence on the fore part of the neck, that rises so gradually as to be at first almost without an outline. As the prominence increases it becomes harder and somewhat irregular, commonly with a partial feeling of fluctuation, though, in some instances, the tumour appears to be firm throughout. The skin grows yellowish, and the op-

Treatment of bronchocele, or Derbyshire-neck. Its progress: and general character.

* See Vol. III. Cl. III. Ord. IV. Gen. XIII. Spec. II. Ulcus *vitiosum*.

† F. E. Fodéré. Traité du Goitre et du Cretinisme. Paris. 8vo. 1800.

GEN. II. SPEC. I. Emphyma Sarcoma. Sarcomatous tumour. Treatment.

pressed veins of the neck become varicose; the respiration is sometimes rendered difficult, and from the same cause the patient is troubled with head-aches. The expediency of removing the tumour is, at this time, highly questionable, and every day increases the difficulty from the growing diameter of its arteries and their proximity to the carotids. If, from inattention or mistaking it for an abscess, it be opened, a hemorrhage often follows which it is difficult to repress, or which is apt to return from time to time, and has occasionally proved fatal. A soft reddish fungus protrudes through the opening, which yields to the fingers, bleeds when it is touched, and cannot be completely destroyed *either by cautery or the knife**. In that form of the tumour, however, which is called the aneurysmal, accompanied with a considerable pulsation and enlargement of the superior thyroidal artery, a cure has easily been obtained by an operation; which consists in tyeing this artery, and thus cutting off the means of supply. M. Walther some years ago pursued this plan with success abroad†; and Mr. Coates relates a similar case that has since been attended with a like result in our own country‡. Yet even in the more complicated and cellular goitre, even where the tumour has increased to an enormous extent and become mapped with innumerable blood-vessels of large diameter, it has in a few instances been attacked and successfully extirpated. One of the boldest operators in this way appears to be M. Hedenus of Dresden, who has lately published a history of not fewer than six cases of this kind which terminated favourably under his care. In one of these the bronchocele had increased to the size of a skittle-ball, covered the whole of the fore-part of the neck, was fourteen inches in circumference at the base, and seven inches in its transverse diameter: it felt firm, tense and heavy, gave to the hand a sense of

Mischief often in opening it.

Operation for aneurysmal bronchocele.

Tumour has been occasionally removed when of enormous extent. Illustrated.

* Traité des Maladies Chirurgicales et des Operations qui leur conviennent. Par M. le Baron Boyer, &c. Tom. VII. Paris 1821.

† Neue Heilart des Kroffes, &c. Sulzback. 1817.

‡ Trans. of the Medical and Chirurg. Society, Vol. x.

pulsation through its whole extent, and considerably affected the breathing from its pressure on the trachea. The difficulties, however, to be surmounted in the performance of this operation were chiefly appalling from the vascularity and complexity of the parasitic growth, and the impossibility of taking up many of the bleeding vessels. The operation lasted an hour and a half, and though the patient ultimately recovered he was several times considered in a state of extreme danger after the operation was over *.

Treatment.

Varies in its internal structure.

The internal substance and structure of this tumour differ exceedingly in different cases. It has sometimes been found steatomatous throughout, but more generally, as we have already observed, consists of a fluid varying in viscidity, and in the number of cells, or capsules in which it is locked up. It commonly first shows itself in girls who have reached the age of puberty, though it frequently commences at a later period; and is an ordinary symptom of cretinism, as we shall notice when treating of that disease in the course of the present order. In a few cases the contained substance is solid, and gives no discharge; and in a few instances the morbid growth has evinced a complication of almost every diversity of structure, and especially in those who are constitutionally predisposed to a production of tubers and tubercles. De Haen has given us a striking example of this in a patient who after having suffered much from visceral tumours, at length died in a state of dropsy. "In cadavere," says he, "horrendam mole thyroideam glandulam nactus, publicè dissecui. Mecum auditores mirabantur nullum ferè genus tumorum dari, quin in hac solâ thyroideâ inveniretur. Hìc enim steatoma, ibi atheroma, alio in loco purulentus tumor, in alio hydatrius, in alio erat coagulatus sanguis, fluidus ferè in alio, imo hinc glutine locutus plenus erat, alibi calce cum sebo mista &c. Hæc autem omnia in una, eademque thyroideâ glandulâ." †

Appears chiefly in girls about the age of puberty.

Sometimes solid and insoluble.

Exemplified from De Haen.

* Gräfe and Walther's Journal du Chirurgie und Augenheilkunde. Berlin, 1822. For an account of which see Quarterly Journal of Foreign Medicine. No. XIX. p. 317.

† Rat. Medendi. Pars VII. p. 285.

GEN. II. SPEC. I. Emphyma Sarcoma. Sarcomatous tumour. Treatment.

Here also we have deficient living power in the organ affected, and very generally in the entire constitution: for it usually appears in girls of relaxed and flaccid fibres, in many cases partly debilitated by growth, and especially where this effect is produced by innutritive food, and partly by a larger flow of catamenia than the general tone of the system can sustain without yielding. On this account we may see why cretinism should be a cause.

Stimulants and tonics:

Stimulants and tonics have hence been found generally useful, as have also repeated and long continued friction with the hand over the area of the tumour, alone or in conjunction with ammoniacal or terebinthinate irritants, chiefly solutions of camphor in spirits. For a reason that does not seem hitherto to have been sufficiently explained, in this kind of tumour, as in those of scrofula, the most successful stimulants are the alkalies: and of these the ammoniacal were formerly believed to be far more so than any of the rest; and hence the patient was limited altogether to a course of burnt sponge or burnt hartshorn, and at one time to burnt toads. There does not seem, however, to be any particular reason for this predilection,

especially alkaline stimulants.

and hence in a later day, the subcarbonate, or the carbonate of soda, were pretty generally allowed to supply the place of all the other preparations of this kind, as the most convenient form in which the alkali could be given. It was also recommended to be applied externally, in the guise of sea-water, or the bibulous sea-plants, as already described in the treatment of scrofula*: both diseases having many points of resemblance, and especially as being chiefly seated in the glandular parts of the animal frame, and accompanied with great indolence in the lymphatic system.

These employed both externally and internally.

Preparations of Iodine.

Coindet's successful employment of them.

In the present day, however, every other kind of preparation, as well for the one as the other complaint, has fallen prostrate before the newly-discovered alkali, now well known by the name of iodine, so denominated by M. Courtois from its violet hue. For the purpose before us it has been used both internally and externally. M.

* Vol. III. Cl. III. Ord. IV. Spec. I. Struma *vulgaris*.

Gen. II. Spec. I. Emphyma Sarcoma. Sarcomatous tumour. Treatment.

Coindet employed it in the form of an ointment, which he made by mixing pure iodine or the hydriodate of potash with lard, under an idea that the ill effect it produces when given injudiciously, may be hereby avoided; and Coster affirms that by the use of Coindet's ointment, of nearly a hundred individuals affected, more than two-thirds were completely cured under his hands*. M. Brera† thinks it quite as void of mischief, and in most cases more efficacious employed internally: and uses it in the form of pills, or tincture made with pure iodine; or a solution of the hydriodate of potash in distilled water. The dose, in either case, is from a quarter to half a grain three times a day, for an adult.

Brera's method.

Effects. When it agrees.

Where it agrees with the system the appetite is increased, and the pulse acquires more elasticity and beats stronger; but it has a tendency at the same time to stimulate the salivary glands in the manner of mercury. Where it does not agree it produces a sense of heat and irritation in the fauces, pain in the orbits and balls of the eye, and obscure vision; with tremours or convulsions of the extremities. Dr. Brera, as already observed, has employed it, on account of its absorbent powers in various cases of parabysma, or visceral turgescence, and especially in tubercular formations; and, as is well known, with considerable success: a success which the present author has extensively confirmed by his own practice in all the forms of this remedy. Yet from the great and general excitement it produces, more judgement is called for in prescribing iodine, whether externally or internally, than is often manifested: and in no case whatever is a bold or daring practice more to be reprobated than in the present. The danger indeed is the greater, because the irritation or inflammatory effects are often not visible for a fortnight or three weeks; though, when they have once commenced, they are in many persons very intractable, notwithstanding an utter disuse

When it disagrees.

Great judgement necessary. Its use.

* Archives Générales de Medicine, &c. in re.

† Saggio Clinico sull' Iodio e sulle differenti sui combinazioni e preparazioni, &c. Padua. 1822.

GEN. II. SPEC. I. Emphyma Sarcoma. Sarcomatous tumour. Treatment.

of the medicine. "I saw two cases, with Dr. Peschier of Geneva," says Dr. Gairdner, "in which the patients had suffered more than twelve months, and yet their sufferings had undergone little mitigation."* There are some idiosyncrasies, however, that are little affected by its use.

Sometimes cured spontaneously. Exemplified.

Bronchocele has sometimes been cured spontaneously, an instance of which occurred not long ago to the present author, in a young lady who had for six or seven years been successively under the care of all the most skilful physicians and surgeons of this metropolis, and who had nevertheless the mortification of finding the protuberance grow much larger, and more unsightly in spite of frictions, and blisters, and setons, and mercury in every form, and the alkalies, and hemlock and hyoscyamus, employed jointly or alternately, and in almost every proportion through the whole of this period. The distended skin at length gave way in various places and a thin fluid issued from the foramina. This natural discharge was encouraged, and the sac by degrees exhausting itself, the tumour as gradually diminished, and at length completely disappeared.

SPECIES II.

EMPHYMA ENCYSTIS.

Encysted Tumour. Wen.

TUMOUR MOVEABLE; PULPY; OFTEN ELASTIC TO THE TOUCH.

GEN. II. SPEC. II. Pathological remarks.

A VERY small change in the power or mode of action of a secernent vessel will often produce a very considerable change in the nature of the fluid which it secretes. Of this we have a clear proof in the thin and acrid lymph

* Essay on the Effects of Iodine on the Human Constitution, &c. 8vo. London. 1824.

poured forth from the mucous membrane of the nostrils in a catarrh, compared with the bland and viscid discharge which lubricates this cavity in a state of health; limpid and mucilaginous at first, but gradually hardening into a horny substance. So the lungs, which, when sound secrete a mild, when in a morbid condition throw out a tenacious phlegm, a watery, or whey-like sanies, or a muculent pus. And we may hence easily account for the great diversity of materials found in the species of tumour before us, which is peculiarly distinguished by being surrounded with a proper cyst, and hence rendered moveable to the touch.

GEN. II. SPEC. II. Emphyma Encystis. Encysted tumour. Wen.

To follow up the subdivision through the whole of the varieties it offers would be almost endless. The following are chiefly worthy of notice:

α Steatoma. Steatome. Adipose Wen.	Encysted extuberance, containing a fatty or suetty substance, apparently secreted from the internal surface of the cyst. Found over most parts the body, and varying in size from that of a kidney bean to that of a pumpkin.
β Atheroma. Atherome. Mealy Wen.	Encysted extuberance containing a mealy or curd-like substance, sometimes intermixed with harder corpuscles: apparently secreted as the last. Found of different sizes over most parts of the body.
γ Melliceris. Honeyed Wen.	Encysted extuberance containing a honey-like fluid. Found of different sizes over most parts of the body.
δ Ganglion. Ganglion.	Encysted extuberance containing a colourless fluid; the extuberation fixed upon a tendon.
ε Testudo. Horny Wen.	Encysted extuberance containing a fluid readily hardening into horn

Gen. II. Spec. II. Emphyma Encystis. Encysted tumour. Wen.

or nail: and especially when protruded externally upon an ulceration of the surrounding integuments.

General origin of encysted tumours.

Most of these are supposed by Sir Astley Cooper to be nothing more at first than obstructed and enlarged cutaneous follicles: the sebaceous matter accumulating in the hollow of the follicle, which is lined with cuticle, and expanding it often to a considerable extent by pressure, in consequence of the mouth of the follicle becoming plugged up or entirely closed. Where it is plugged up the obstructed mouth is generally visible by a black dot, which is carbonized sebaceous matter. This being picked off or otherwise removed, a probe may often be easily forced down into the cavity and the whole of the confined material be squeezed out by pressing the sides of the tumour, even when of some inches in diameter, and this with little pain and no inflammation *. Such Sir Astley regards as the general history of common encysted tumours seated on the surface. But they will necessarily vary in their structure and contents from a multiplicity of adventitious circumstances, and perhaps also from idiosyncrasy.

But varieties of structure and contents from adventitious or other circumstances.

Steatome.

The steatome grows to a larger size than any of the rest. Rhodius gives a case in which it weighed sixty pounds †: and it has been dissected of the weight of twenty-six pounds from the scapula ‡. In its substance it often makes a near approach to adipocire: and as it is well known that every organ is convertible into this material by certain laws of chemistry after death, we can the more easily conceive the formation of such a material even during life where the action of the living power is locally weak or morbid in some other respect.

Often approaches adipocire.

Ganglion.

The ganglion is introduced into the present list from the parity of its nature; and in so doing the author has only followed the example of Mr. Sharp. "The ganglion

* Surgical Essays, by A. Cooper and B. Travers. Part II. 1819.

† Observ. Med. Cent. III. Patav. 1657. 8vo.

‡ Fabr. Hildan. Cent. III. Obs. 63.

of the tendon", says he, " is an encysted tumour of the melliceris kind; but its fluid is generally like the white of an egg. When it is small, it sometimes disperses of itself. Pressure and sudden blows do also remove it, but for the most part it continues unless it be extirpated."* It is mostly produced by hard labour, or straining a tendon; and hence is peculiarly common to the wrists of washing-women. In many instances, however, its exciting cause is unknown: and in some cases it appears to be connected with the constitution. It is singular that it should sometimes disappear, as it seems to do, during pregnancy, and return afterwards. Plater records a case of this kind in the ham, and Bartholine, in the Copenhagen Transactions, another on the wrist.

GEN. II. SPEC. II. Emphyma Encystis. Encysted tumour. Wen.

The horny cyst is described by Vogel, under the name of testudo, here adopted. Mr. Abernethy has glanced at it in his treatise, and Sir Everard Home has more fully described and illustrated it in his cases of horny excrescences on the human body, inserted in the Philosophical Transactions: a subject, however, which we shall have occasion to return to when treating of LEPIDOSIS ICTHYIASIS, in the third order of the present class.

Testudo or Horny-wen.

I have stated that the ganglion is sometimes connected with the habit or constitution, and the remark may be applied to several of the other varieties. They have hence been found scattered over the whole body †; and in one instance appear to have been connate and hereditary ‡. In these cases they will sometimes yield to a general treatment or a change of regimen. Richter gives examples of the cure of a steatome, one of the most difficult to be operated upon by internal means, by emetics §; and Kaltschmid, by a diet of great abstinence ‖; by which plan we have already observed that

Several of these sometimes connected with the habit or constitution: and yield to a general treatment, or change of regimen. Have been carried off by emetics.

* Surgery, chap. xxv. p. 128.

† O'Donnel, Lond. Med. Journ. VI. p. 33.

‡ Vogel, Briefen an Haller. I. Hundest. § Chir. Bibl. Band. V.

‖ Pr. de Steatomate fame curato. Comp. Girard, Lupiologie: ou Traité des Tumeurs connues sur le nom des Loupes. Paris 1775.

Gen. II. Spec. II. Emphyma. Encystis. Encysted tumour. Wen.

adipose corpulency is commonly capable of being removed, and hence not unreasonably advised where there is a tendency to the formation of adipose tumours.

Electricity has been useful.

Electricity, and particularly that of the voltaic trough, seems to have been serviceable in dispelling many tumours belonging to this and the last species; and having omitted it in its proper place, we may here observe that Dr. Bason of Dublin has given an instance, in which a hard scirrhous tumour was removed from the breast of a woman who was struck to the floor, and for sometime deprived of the use of her limbs by a stroke of lightning. It was observed to be much softer almost immediately after the accident, and in a short time totally disappeared, though it had for a long time resisted the power of every application that could be thought of *.

For the rest the writers on practical surgery must be consulted, and especially Mr. Sharp's excellent Treatise, and Mr. Abernethy's work already referred to.

SPECIES III.

EMPHYMA EXOSTOSIS.

Bony Tumour.

TUMOUR INELASTIC, OFTEN IMMOVEABLE; HARD AND BONY TO THE TOUCH.

Gen. II. Spec. III.

These consist of calculous or bony matter; and are sometimes seated immoveably on a bone, sometimes immoveably on the periosteum, sometimes pendulously in a joint, sometimes either moveably or immoveably in some fleshy part of the body, thus constituting the four following varieties:

α Ostea. Osteous Tumour.	Immoveable; protuberant; seated on the substance of a bone.

* Edin. Med. Comm. IV. p. 84.

β Periostea. Node.	Immoveable: protuberant; from a bony enlargement of the periosteum.	Gen. II. Spec. III. Emphyma Exostosis. Bony tumours.
γ Pendula. Pendulous Exostosis.	Bony tumour hanging pendulous into a joint.	
δ Exotica. Exotic Exostosis.	Bony tumour moveable or immoveable, seated in some fleshy part of the body.	

Lime is one of the substances most easily secreted in the body of all animals. How far it may be *formed* in the body we shall have occasion to notice under the genus OSTHEXIA, forming the fifth of the present order. We behold it at an early period of fetal life, and, in old age when every other secretion has diminished or failed altogether, we are perpetually meeting with examples of a morbid augmentation of this in the coats of the blood-vessels, the bladder, the brain, and various other organs, afflicting the closing years of life with a variety of troublesome, and not unfrequently highly painful disorders. Pathological remarks.

The FIRST VARIETY is found in most of the bones of the body, but chiefly perhaps in the bones of the cranium: where they are sometimes excrescent, and composed of bony spicula resembling crystallizations: sometimes exquisitely hard and glabrous, analagous to ivory*; no doubt from their being composed of phosphate in a greater measure than carbonate of lime. α E. Exostosis ostea. Osteous tumour.

According to their structure, Sir Astley Cooper has subdivided these tumours into cartilaginous and fungous; and, according to their seat, into periosteal, when they commence between the external surface of the bone, and the internal surface of the periosteum; and medullary, when they commence in the medullary membrane and cancellated fabric of the bone†.

This periosteal subdivision includes the SECOND VARIETY of the present species: which is chiefly found as a symptom in lues, and is commonly described under the name of *node*. In some instances it has occurred as β E. Exostosis periostea. Node.

* Baillie, Morb. Anat. Fascic. x. Pl. i. Figg. 1. 2.

† Surgical Essays, Treatise on Exostosis.

GEN. II. SPEC. III. β E. Exostosis periostea. Node.

a sequel of acute rheumatism. And in both cases its treatment must depend upon the nature of the disease to which it appertains, and must form a part of the general plan, as we have already observed when discussing these maladies.

γ E. Exostosis pendula. Pendulous exostosis. Illustrated.

The THIRD and FOURTH VARIETY are chiefly derived from Mr. Abernethy's classification. The difference of their form and mode of union with the adjoining parts, depends chiefly upon the difference of their seat. "A woman", says Mr. Abernethy, "was admitted in St. Bartholomew's Hospital with a hard tumour in the ham. It was about four inches in length and three in breadth. She had also a tumour in the front of the thigh a little above the patella, of lesser size and hardness. The tumour on the ham by its pressure on the nerves and vessels had greatly benumbed the sensibility and obstructed the circulation of the leg so that it was very edematous. As it appeared impossible to remove this tumour, and as its origin and connexions were unknown, amputation was resolved on. On examining the amputated limb, the tumour in the ham could only be divided by a saw: several slices were taken out of it by this means and appeared to consist of coagulable and vascular substance, in the interstices of which a great deal of bony matter was deposited. The remainder of the tumour was macerated and dried, and it appeared to be formed of an irregular and compact deposition of the earth of bone. The tumour on the front of the thigh was of the same nature with that in the ham: but containing so little lime that it could be cut with a knife. The thigh-bone was not at all diseased."*

δ E. exotica: Exotic exostosis. All these cases for surgical rather than medical treatment; and rarely to be cured but by extirpation.

Of the general nature of the exotic variety we shall have to treat under OSTHEXIA INFARCIENS, of which perhaps it is only a modification.

These in all instances are cases for surgical rather than medical treatment, and are seldom to be cured except by extirpation, and, when this cannot be done, and the tumour is seated on a limb, by amputation.

* Surgical Observations, Classification of Tumours, p. 102.

GENUS III.

PAROSTIA.

Mis-ossification.

BONES UNTEMPERED IN THEIR SUBSTANCE, AND INCAPABLE OF AFFORDING THEIR PROPER SUPPORT.

Gen. III. Origin of the generic term.

Parostia is a compound from παρὰ, "perperàm", and ὀστέον, "os, ossis". The genus is new, but sufficiently called for. It includes two species connected by the common character of an inaccordant secretion of some one of the constituent principles of the bony material, in consequence of which the substance is rendered too brittle, and apt to break on slight concussions, or other movements, or too soft, and equally apt to bend. These species are as follow:

1. PAROSTIA FRAGILIS. FRAGILITY OF THE BONES.
2. ——— FLEXILIS. FLEXIBILITY OF THE BONES.

SPECIES I.

PAROSTIA FRAGILIS.

Fragility of the Bones.

SUBSTANCE OF THE BONES BRITTLE AND APT TO BREAK ON SLIGHT EXERTIONS, WITH LITTLE OR NO PAIN.

Gen. III. Spec. I. Physiological remarks.

Bone, shell, cartilage, and membrane, in their nascent state are all the same substance, and originate from the coagulable lymph of the blood, which gives forth gela-

GEN. III. SPEC. I. Parostia fragilis. Fragility of the bones.

tine and produces, by secretion, though as already observed it does not contain, albumen. Membrane is gelatine with a small proportion of albumen to give it a certain degree of firmness: cartilage is membrane with a larger proportion of albumen to give it a still greater degree of firmness; and shell and bone are cartilage, hardened and rendered solid by the insertion of lime into their interior: in the case of shell, the lime being intermixed with a small proportion of phosphoric, and a much larger proportion of carbonic acid; and in the case of bone, with a small proportion of carbonic, and a much larger of phosphoric acid. It is hence obvious that if the earthy and the animal parts do not bear a proper relation to each other, the bone must be improperly tempered, and unadapted to its office: that if the earthy or calcareous part be deficient, its substance must be soft and yielding; and that if the animal part be deficient, or the calcareous part in excess, it must lose its cohesive power, become brittle, and apt to break.

Pathology.

It is the second of these morbid states that forms the proximate cause of the species before us, as the first forms the cause of the ensuing species.

Fragilitas ossium, or fragile vitreum, what.

PAROSTIA FRAGILIS is the fragilitas *ossium*, or fragile *vitreum* of authors, and is most frequently found as an attendant upon advanced age. It is, also, occasionally to be met with as a symptom in lues, struma, porphyra, cancer *, and general intemperance; and has been known as a sequel of small-pox. In most of these diseases the blood becomes attenuate, and the coagulable lymph loses much of its viscidity. In old age the diameter of the blood vessels becomes contracted, all the secretions are separated less freely, and particularly that of animal oil; and the grossest of them, and hence, particularly the earthy corpuscles, are less freely absorbed, and consequently accumulate. We are, therefore, at no loss to account for the increased hardness and fragility of the bones under these circumstances; nor for their tendency to break upon slight

Occurs chiefly in advancing years, and why.

* Neuveau Journ. de Medicine, Tom. i. p. 138.

and sudden movements. The author was once present at a church in which a lady nearly seventy years old, in good general health, broke both the thigh bones in merely kneeling down; and on being taken hold of to be carried away, had an os humeri also broken without any violence, and with little pain. It was in the winter season, and the cold might have added to the constitutional rigidity. From the general inirritability of the system no fever of importance ensued, and, under the influence of a warm bed, and a diluent but somewhat cordial regimen, the bones united in a few weeks. Mr. Gooch relates a similar case of fracture occasioned by a violent fit of coughing*.

GEN. III. SPEC. I. Parostia fragilis. Fragility of the bones. Exemplified.

The common cause seems to consist in a general inirritability of the system, and a torpitude of the absorbent powers, which, by carrying off only the finer and more attenuate particles, and suffering the grosser, and particularly the earthy, to accumulate, overcharge the bones with this material.

Common cause.

Hence the best remedy is to be found in a plan of warm tonics that may supply the system with something of the stimulus it stands in need of, and in a free use of acids whether mineral or vegetable, that, by their tendency to dissolve calcareous earth, may at least diminish its introduction into the chyliferous vessels in the process of digestion, if they do not reach the assimilating vessels of the bones and lessen the separation or elaboration at the extremity of the nutritive chain.

Remedial process.

Of the mineral acids the sulphuric will generally be found preferable; it seldom gripes or nauseates, and almost always promotes the action of the stomach when weak or indolent. It is hence, also, an excellent tonic, and may be persevered in longer than any of the rest. The muriatic agrees in most cases with the stomach, but not with the bowels, which always become more relaxed during its use than where the other acids are employed. It is on this account, however, peculiarly adapted to cases of habitual constipation. The nitric acid, in a few idio-

* Observations, &c. Appendix.

Gen. III. Spec. I. Parostia fragilis. Fragility of the bones.

syncrasies, has proved a very powerful tonic, as well as solvent of animal earth; but in many cases it disagrees with the stomach, and produces flatulency, eructation, and other symptoms of indigestion. Where these cannot be employed, we must have recourse to the vegetable acids, and especially the citric, or tartaric, the last either in its pure form or in that of creme of tartar. Lemons and oranges may also be taken copiously, and the carbonic acid, combined with water by means of Nooth's apparatus.

SPECIES II.

PAROSTIA FLEXILIS.

Flexibility of the Bones.

SUBSTANCE OF THE BONES SOFT AND APT TO BEND AND BECOME CROOKED ON SLIGHT EXERTIONS WITH LITTLE OR NO PAIN.

Gen. III. Spec. II. Mollities ossium, Spina ventosa.

This is the mollities *ossium* of authors, formerly denominated spina *ventosa*, from its being first noticed on the spine, and accompanied with protuberances which were supposed to proceed from inflation.

Its physiology has been given under the preceding species, with which it is connected in the relation of contrast. As fragility of the bones proceeds from an excess of osseous earth, *flexibility* proceeds from a deficiency of one or more of the elements which constitute it. This deficiency may proceed from two causes, each producing some peculiarity of symptoms, which we shall presently illustrate by examples. For first, there may be too small a secretion or elaboration of calcareous phosphate to allow a sufficient compactness to the bones: and secondly, there may be an adequate separation of the calcareous

Proceeds from a deficiency of the elements of calcareous earth:

GEN. III. SPEC. II. Parostia flexilis. Flexibility of the bones.

earth but a deficiency of the phosphoric acid which, we have already observed, is necessary to give it fixation; in consequence of which it is often carried back in a loose state into the circulation, and discharged as a recrement by the kidneys or some other emunctory.

either in the earth itself; or its phosphoric acid.

The disease is sometimes idiopathic, and occurs sometimes as a symptom of porphyra, diabetes, and some forms of colic. In direct opposition to the preceding species, moreover, it is commonly found in the earlier rather than in the later periods of life, and has been observed in infancy. It has occasionally been detected in quadrupeds, and of the stoutest kinds, as the ox and the lion. It is sometimes general, and sometimes confined to particular bones.

Found in the earlier rather than in the later periods of life. Has been traced in the stoutest quadrupeds.

The cause is commonly obscure: it appears frequently to consist in a morbid state of the digestive organs, but is seated, perhaps, as often at the other extremity of the great chain of the nutritive powers, in the assimilating or secernent vessels, where it must necessarily elude all detection. In the museum of Professor Proskaska of Vienna, is a preparation of an adult who died of this disease, in which all the vertebræ are glued into one mass, the sacrum being scarcely distinguishable, and the ribs bent inward, and marked by the impression of the arms, which the patient was in the habit of pressing forcibly against his sides. The whole skeleton is extremely light. This last fact is always the case from the absence of so large a portion of animal earth. An analysis, by Dr. Bostock, of the vertebræ of an adult female who died of the species before us, indicated that the earthy matter was only one-eighth part of the weight of the bone, instead of amounting to more than half, which Dr. Bostock estimates to be its proper proportion in a state of health*.

Cause obscure. May exist in the digestive organs: but as often in the assimilating powers. All the vertebræ have been found glued together. Great loss of weight in the animal frame as calculated by Bostock. Singular exemplification.

A singular case of this disease is given by Dr. Hosty, of Paris, in the Philosophical Transactions†. The patient, a married woman, between thirty and forty years

* Transactions of the Medico-Chirurg. Soc. Vol. IV. p. 42.

† Vol. XLVIII. year 1753.

Gen. III. Spec. II. Parostia flexilis. Flexibility of the bones.

of age, was attacked by it gradually, after several lyings-in and two falls on the side, which gave her great pain over all her body but fractured no bone. The first decided symptom was an incurvation of one of the fingers, accompanied with a very considerable discharge of bony or calcareous earth by the urine, which was loaded with it, and gave a copious deposite. The incurvation by degrees extended to all the limbs, so that the feet were at length bent upwards nearly to the head, but without muscular contraction or fracture. The calcareous matter at length ceased to flow towards the bladder, and seems to have been transferred to the salivary glands, from which was discharged a flux of dark discoloured spittle. All the functions of the body were in a state of great disorder; she had at times a very considerable degree of fever, which was at one period accompanied with headache, delirium, and subsultus tendinum. She died in about a twelvemonth from the commencement of the disease, and all the bones on being examined were found soft and supple, though many of them, as the ribs, were still in some degree friable; the scalpel, with very little force, ran through the hardest of them. Nothing extraordinary was found in the thoracic or abdominal viscera, but the right hemisphere of the brain appeared to be one-third larger than the left.

Calcareous earth discharged by the bladder and salivary glands.

Case explained.

In this case the disease evidently commenced in the bones themselves, and seems to have proceeded from a want of phosphoric acid to give compactness to the calcareous earth; for that there was a sufficiency of this earth, is clear from its being found loose in the fluids and thrown out as a recrement by the urine and saliva till the whole was removed, and nothing of the bones remained but their cartilaginous or membranous fabric. In a similar case, related in a work of considerable value by Mr. Thompson, this tendency to the discharge of the absorbed and loose earth of the softened bones at the emunctories of the body was still more considerable. The urine, we are told, for the first two years of the patient's illness, deposited generally a whitish sediment, which upon eva-

Discharge of calcareous matter by the emunctories of the body sometimes still larger. Exemplified.

portion became like mortar, and on one or two occasions he voided a few jagged calculi. After this period the calcareous discharge ceased, the bones having no more earth in their composition, as was sufficiently ascertained on the patient's death, which, however, did not occur till nine years from the commencement of the malady*.

Gen. III. Spec. II. Parostia flexilia. Flexibility of the bones.

It is probably to this species we are to refer the singular case, translated by Reiske from the Arabic of Ghutzi, of an individual, contemporary with Mahomet, who had no proper bones but those of the cranium, neck, and hands; every other part of the body being pliable as a piece of cloth to the touch of other persons, though the individual could not of his own accord bend a single limb. He was a man, we are told, of the highest dignity, and had acquired celebrity for his wisdom. He was usually carried from place to place in a wicker basket of palm twigs†.

Singular exemplification from Reiske.

In some cases there seems to be but little deficiency of phosphoric acid, while there is an evident want of earthy matter: for we meet with no calcareous discharge by any of the emunctories, while the union which takes place between whatever portion of the earth is conveyed to the bones and the phosphoric acid which is secreted at the same time, renders them in some degree friable, though weak, and hence as liable to fracture on slight exertions, as in the preceding species.

Sometimes the earth itself deficiently secreted, and in such cases no such discharge.

A case of this kind was, not long ago, under the joint care of the author and Mr. Howship. The patient was a lady, heretofore in good health, of about eight and twenty: both the thigh-bones had been broken without any violence about a twelvemonth antecedently, and all the other bones showed a strong tendency to softness and compressibility. There was great general debility in all the functions, with a feeble and quickened pulse. By perfect quiet, a recumbent posture on a hard and level couch, and the steady use of a tonic regimen and diet, she was put into a

Illustrated.

* Medical Observations and Inquiries by a Society of Physicians in London. Vol. v. 8vo.

† Opuscula Medica ex Monumentis Arabum. 8vo. Hallæ 1776.

GEN. III. SPEC. II. Parostia flexilis. Flexibility of the bones.

way of recovering. Her general health improved, the extremities of both bones appeared to be united and buried in an irregular mass of callus that clustered around them, and in a few months it was recommended to her to be removed by an easy conveyance to the sea coast.

Additional illustration.

A somewhat similar case, but of greater severity, communicated by Sir John Pringle to the Royal Society, is contained in its forty-eighth volume*. The patient was an unmarried female servant of good character. A parostic diathesis seems from some cause or other to have existed, and to have been brought into action by a tedious and troublesome chlorosis. One of the legs first gave way, and snapped as she was walking from the bed to her chair, and soon afterwards both the thigh bones, from a little exertion. From this time her general health suffered, her habit became cachectic, and there being an increasing inability to a supply of compact calcareous earth, all the bones became soft and pliable, and bent in every direction without breaking, while those which were broken never united. Her head, however, was throughout scarcely affected, and her mental faculties continued clear to the last. She died in less than nine months from the commencement of the disease, and on examining her body, all the bones were capable of being cut through without turning the edge of the knife.

Medical treatment. Mercury, has rarely been found useful. Deficiency of the constituents of the earth of bones dependent upon local or general debility. Hence perfect quiet necessary:

In one of the two preceding cases mercury was employed, and carried to the extent of producing salivation, yet without any benefit whatever. It is not easy, indeed, to conceive what benefit could be expected from such a plan. The deficiency of one or all the constituents of perfect and healthy earth of bones, is evidently dependent upon local or general debility, though we cannot always discover the cause of this debility, nor the peculiar circumstances connected with it which give rise to this rather than any other effect of diminished energy. And hence, the only line of treatment we can engage in with any hope of success is that of perfect quiet, and a recumbent posture or

* Phil. Trans. year 1753.

a hard matrass, or slightly inclined plane, to prevent distortion and fracture, a plain but nutritive and somewhat generous diet, and a course of tonic medicines. In the case of the lady just adverted to, and who was put into a train of recovery, the medicines chiefly employed were various preparations of cinchona and iron, chiefly the pilulæ ferri compositæ, with an allowance of ale instead of wine with her dinner.

GEN. III. SPEC. II. Parostia flexilis. Flexibility of the bones. a recumbent position: nutritive and generous diet: and tonic medicines.

Since the first edition of this work, I have learnt that this patient, when in the full hope of resuming her former health, was suddenly carried off by an attack of pleurisy.

GENUS IV.

CYRTOSIS.

Contortion of the Bones.

HEAD BULKY, ESPECIALLY ANTERIORLY: STATURE SHORT, AND INCURVATED; FLESH FLABBY, PALE AND WRINKLED.

Gen. IV. Origin of generic term.

THE term CYRTOSIS is derived from the Greek κυρτὸς, "curvus, incurvus, gibbosus", and, among the ancients, particularly imported recurvation of the spine, or posterior crookedness, as lordosis (λόρδωσις), imported procurvation of the head and shoulders or anterior crookedness.

Lordosis what.

Cyrtonosos.

It has, in recent times, more generally been written CYRTONOSOS, literally "morbus incurvus": but the term νόσος, or morbus, is pleonastic in a system of nosology, and hence, CYRTOSIS is preferable.

The genus is intended to include two specific diseases which have a close connexion in many of their most prominent symptoms, and especially in the sponginess and incurvation of the bones, and in the withered appearance of the flesh, insomuch that the second is, by some, regarded as only a modification of the first; but which, however, are peculiarly distinguished from each other by the different state of the mental powers.—These are:

1. CYRTOSIS RHACHIA. RICKETS.
2. ——— CRETINISMUS. CRETINISM.

SPECIES I.

CYRTOSIS RHACHIA.

Rickets.

CHIEFLY AFFECTING THE LIMBS AND BODY: SPINE CROOKED; RIBS DEPRESSED; ARTICULAR EPIPHYSES ENLARGED AND SPONGY; BELLY TUMID; MENTAL FACULTIES CLEAR, OFTEN PREMATURE.

GEN. IV. SPEC. I. Origin of the vernacular names of both species: cretinism.

THERE is some doubt about the origin of both the vernacular names. Cretinism on its first discovery was, by many writers, supposed to be produced by an habitual use of water impregnated with chalk or *creta*, in the low Swiss valleys where it was earliest traced: and it is commonly supposed that the specific name is derived from this opinion.

Rickets or rhachitis.

The English word *rickets* is usually written in technical language, rhachitis; a name first given to it by Glisson, and said to be derived from ῥάχις *(rhachis)*, the spine, in consequence of the distortion and curvature of this organ, occasioned by its being no longer able to bear the weight of the head and upper extremities. As this malady, however, was first observed in England, and particularly in the western counties, and was *provincially* denominated *rickets*, before it attracted the attention of medical writers; it is more probable that rickets is derived from the Saxon ꝛıcz *(ricg* or *rick)* "a heap or hump", and particularly as applied to the *back*, which also it denotes in a second sense; so that *ricked* or *ricket* is literally, in its full import, "hump-backed". It is from this root we derive *hay-rick*, "a heap of hay", and not, as Dr. Johnson has given it, from "reek", to smoke. Rhachitis might, however, be a word sufficiently good for the present purpose, were it not for its termination; ITIS, in the medical tech-

Rhachitis why not employed as the specific term.

GEN. IV. SPEC. I. Cyrtosis Rhachia. Rickets.

to supply; and consequently that the disease is chiefly seated in the assimilating powers. And in treating of atrophy, we observed that the one extremity of the nutritive chain so closely harmonizes with the other, that, let the disease commence at which end soever it may, the opposite is affected by sympathy. We also observed that the different divisions of secernents are not all equally under the influence of a morbid torpitude; since occasionally those that secrete the animal oil cease to act long before any of the rest; whence emaciation occurs, and in many instances continues, for some time as a solitary symptom: and the individual falls away in plumpness without being sensible of any other failing.

In rickets the nutritive organs disturbed generally, but chiefly those that supply bony earth.

In rickets the nutritive organs are disturbed generally through the whole length of the chain, but the chief failure is in a due supply of bony earth, or the phosphoric acid that should combine with it. The evident intention of this kind of supply is to enable the bones to expand and acquire maturity while growing, and to uphold their strength and firmness afterwards. And so long as they obtain a sufficient supply, and the waste earth of the bones is proportionably carried off by the absorbents, so long this part of the animal economy continues perfect; but with the exception of the fat or animal oil, there is perhaps no secretion that is so liable to have its proper balance disturbed, whether by excess or deficiency, by a morbid condition of the digestive or of the assimilating powers, as that of bony or calcareous earth.

Proximate cause of rickets and cretinism.

A deficient formation then, or elaboration of bony earth, constitutes the proximate cause of both rickets and cretinism. The remote or exciting cause it is not always in our power to ascertain; yet in numerous, perhaps in most instances, we are capable of tracing them to a want of pure air and a warm and dry atmosphere, nutritious food, regular exercise, cleanliness, and the concomitant evils attendant upon a state of poverty; and hence it is chiefly in the hovels of the poor, the destitute, and the profligate, that both diseases are met with; while the severity of the symptoms is very generally in proportion to the extent or multiplication of these concurrent causes.

Remote and exciting causes.

But there are other diseases that result from the evils we are now contemplating as well as rickets or cretinism, such as atrophy, scrophula, scurvy, and typhous fevers: and hence, there must be some predisponent cause operating in the present instance, and calling rickets into action rather than any one of the rest. Such cause we do not seem always able to trace, but there is reason to believe that it is sometimes dependent upon an hereditary taint of an idiopathic nature, sometimes upon a scrofulous or venereal depravation in the constitution of the father or the mother. Such, also, is the opinion of Dr. Cullen. "This disease", says he, "may be justly considered as proceeding from parents: for it often appears in a great number of the same family; and my observation leads me to judge that it originates more frequently from mothers than from fathers. So far as I can refer the disease of the children to the state of the parents, it has appeared to me most commonly to arise from some weakness, and pretty frequently from a scrophulous habit in the mother."—"I must remark, however", continues Dr. Cullen, "that in many cases I have not been able to discern the condition of the parents to which I could refer it."*

These causes productive of other diseases as well: and hence some predisponent cause calling rickets rather than any other disease into action. This sometimes an hereditary taint.

Rickets seldom appears earlier than the ninth month of infancy, and not often later than the second year, being preceded, according to Dr. Strack, by a paleness and swelling of the countenance, and a yellow, sulphur-hue in that part of the cheeks which should naturally be red†. In some instances it seems to have originated later; in every stage, indeed, of a child's growth, till the bones have acquired their full size and firmness‡: and it is said to have occurred even after this. But in these late appearances we are generally capable of tracing the disease to some local injury, which acts as an exciting cause, and, for the most part, unites it with PAROSTIA *flexilis*.

Appears chiefly in infancy and childhood. Precursive signs.

Sometimes appears later.

* Pract. of Phys. Vol. IV. Book II. Ch. IV. § MDCCXXII.

† Act. Philosophico-Medico Soc. Acad. Princ. Hassiæ, &c. 4to. Giessæ Catborum.

‡ Thomasin, Journ. de Med. Tom. XLIII. p. 222.

Gen. IV. Spec. I. Cyrtosis Rhachia. Rickets.

Rhachia, in its ordinary course, commences imperceptibly and advances slowly; the body becomes gradually emaciated, the flesh flaccid, and the cheeeks wan or sallow, with a slight degree of tumefaction. As the flesh diminishes in bulk, the head is found to increase, the sutures gape, and the forehead grows prominent. The spine bends and is incapable of supporting the weight it has to carry; the ribs and sternum partake of the distortion, the former lose their convexity, and the latter projects into a ridge.

Commencement and progress of the disease.

Deficiency of bony matter runs through the entire skeleton.

The same deficiency of bony earth runs through the entire skeleton, and affects not only those parts that are composed chiefly of lime and phosphoric acid, as the flat bones and the middle of the long bones, but the extreme knobs or epiphyses, in which lime is combined as largely with carbonic as with phosphoric acid. And hence, the joints are loose and spongy, and in swelling keep pace with the head. In many instances the lime appears to be elaborated but without its correspondent acids, and consequently, without compactness, and to no purpose: for we can occasionally trace it loose in the urine, in which it forms a calcareous deposite, as though carried off from the blood as a recrement.

Bony earth traced loose in the urine, and why.

All the assimilating powers participate in the debility in a greater or less degree: the process of dentition is slow and imperfect, and while the cellular membrane is without animal oil, the muscular fibres are tabid, without energy, and almost inirritable. It does not seem, however, that the secretion of sensorial power is so much interfered with as the other secretions of the system. Some part, indeed, of what should be sent over the frame at large, appears to be concentrated in the sensorium: so that its equipoise is disturbed, but the general average is not perhaps much diminished. And we are hence able to account for the curious and interesting fact that while the body is generally failing, the mind in many instances advances in its faculties, insomuch that a very slight recapitulation of the names of those who have been pre-eminently gifted with mental talents in every age and

All the assimilating powers partake of the debility: but the sensorial power least of all: and hence the mind advances while the body fails.

The truth of this remark easily confirmed by a reference to history.

nation, and have immortalized themselves as poets, philosophers, and even leaders in the field, will put before the eye of persons who have not much attended to this subject, a far greater proportion of the hump-backed, and the ricketty, than they may hitherto have had any conception of. We had occasion to make a like remark when treating of scrophula, and the same fact occurs almost as strikingly in hectic fever. The progress of the mind does not necessarily depend upon the general progress of the body: in the ordinary course of things the one runs parallel with the other; but, in the great field of pathology, where this course is departed from, we are perpetually called to behold proofs that these powers are by no means one and indivisible; and that, even before the hour of death, the spirit gives token of an advance towards perfection, while the body, in its general crasis, is imbecile, or, perhaps, sinking gradually into ruins.

GEN. IV. SPEC. I. Cyrtosis Rhachia. Rickets.

At the commencement of rickets there is rarely any degree of fever, but, as the disease advances, irritability, as in scrophula, succeeds to inirritability, and a hectic is produced. Or it may happen that the sensorium at last participates in a greater degree with the disease of the rest of the frame, and the mind itself becomes enfeebled, and torpid, or fatuous.

Little or no fever at the commencement of the disease, but gendered as it proceeds: hence the mind at length affected.

In the treatment of rickets, the eye should be directed to the two following intentions: that of strengthening the system generally: and that of facilitating a supply of phosphate of lime to the organs that form the chief seat of disease.

Medical treatment: embraces two intentions.

For the former purpose, a pure, dry, and temperate atmosphere, a wholesome and somewhat generous diet, regular exercise, of such kind as can be indulged in with the least inconvenience, cleanliness, and cold-bathing are of essential importance, and have often worked a cure alone. And it is possibly owing to a more general conviction of the advantage of such a regimen in the present enlightened age, that rickets is a complaint far less common now than it was a century or even half a century ago.

First intention, that of strengthening the system generally.

A tonic plan of medicines, however, ought to be inter-

GEN. IV. SPEC. I. Cyrtosis Rhachia. Rickets. Treatment. First intention. Metallic salts.

posed, and will effectually co-operate with a tonic regimen. As in infancy we can employ those remedies only which are neither very bulky nor very disgustful, we should, for the purpose immediately before us, make choice of the metallic salts. Mr. Boyle is said to have employed, long ago, with very great success, some kind of *ens veneris;* and various preparations of copper have since been made use of, and been highly extolled for their virtues in the present disease, especially by Benevoli, and Büchner. Dr. Cullen, however, is persuaded that the ens veneris of Boyle was a preparation not of copper, but of iron, in fact the *flores martiales* of the old dispensatories, and there is no doubt that this conjecture is right. From the general irritability of the system, iron, indeed, seems to be more adviseable on the present occasion than any other metal. And its stimulant property is a recommendation to its use, rather than a dissuasive.

Emetics.

If the appetite fail, which is not common, and the stomach evince acidity and other dyspeptic symptoms, an occasional emetic will be highly serviceable. The bowels must be kept open with rhubarb, or neutral salts; and, if the abdomen be tumid, or there be any other symptoms of an affection of the mesenteric glands, mercury in small doses may be advantageously had recourse to, and combined with the tonic plan.

Aperients.

Second intention, that of producing a direct supply of osseous matter. How far this may be accomplished.

The means of carrying into execution the second intention, or that of producing a direct supply of osseous matter, is accompanied with more difficulty, nor is it certain that we are in possession of any remedy whatever by which this can be accomplished, though it has often been attempted.

Bone may be regarded as a cancellated fabric of gluten whose cells are filled up with the earth of lime and a combination of carbonic and especially phosphoric acid. In all cases of rhachia there seems to be a deficiency of these acids, but particularly of the phosphoric, and, in many cases, a deficiency of the earth as well as of the acids.

Acids when n excess

Acids, however, of every kind, when in excess, have a

GEN. IV. SPEC. I. Cyrtosis Rhachia. Rickets. Treatment. Second intention.

tendency to dissolve calcareous earth instead of concreting it into a solid mass: and hence one of the most effectual means of preventing that tendency to the separation or production of a morbid superabundance of calcareous earth in OSTHEXIA and LITHIA, is a free use of acids as a solvent.

dissolve bony earth, and hence alkalies and alkalescent earths have been employed in the present disease, and especially phosphate of lime.

A hint has been taken from this effect, and, as the disease before us is of an opposite kind, and evinces a deficiency of lime, and especially of phosphate of lime, instead of an excess, it has been ingeniously proposed to pursue an opposite practice, and to have recourse to a free use of alkalies and alkalescent earths, especially lime united with phosphoric acid, with a view of obtaining the deficient materials. Baron Haller and De Haen employed, for this purpose, prepared oyster-shells; but these consist of lime with carbonic acid, and do not, therefore, offer a proper supply for the basis of bones. M. Bonhomme has of late improved upon this practice by substituting the phosphate of lime, or the powder of bones for its carbonate, and uniting it in equal parts with phosphate of soda: of which compound the dose is a scruple for an infant given twice a day. And he recommends that the body should also be bathed morning and night with an alkaline solution, consisting of half an ounce of common potass in a pound of spring water. Abilgaard has carried the alkaline plan still farther, and has employed the fixed alkali internally *. And, as acidity of the stomach in infants seems to be one cause of the disease, and a principal cause, as conjectured by Cappel † and Zeviani ‡, where the digestion is evidently at fault, we may, in such circumstances, reasonably expect benefit from alkaline preparations or magnesia.

How far such preparations may find their way without decomposition to the assimilating vessels.

How far any preparation of lime introduced into the stomach may be able to find its way without decomposition through the sanguiferous system to the assimilating

* Collect. Soc. Med. Havn. I. Art. I.

† Versuch einen vollerständigen Abhandlung über die Englische krankheit, &c.

‡ Della cura di Bambini attacati della Rachitide. Cap. II. p. 80.

GEN. IV. SPEC. I. Cyrtosis Rhachia. Rickets. Treatment. Second intention.

vessels, and be secerned in the parts affected, has not been exactly determined. Vauquelin made various experiments upon fowls, to decide the question, and M. Bonhomme has since attempted others. To themselves these experiments appeared satisfactory; but they are open to some objections which have not been entirely removed. Yet we see every day, in a thousand instances, with what facility substances, of almost every kind, introduced into the stomach, are diffused with little other change than that of minute division over every part of the system. Emetics do not act till they reach the circulating system: the colouring matter of the madder-root is conveyed to and tinges the most solid bones: prussiate of potash, turpentine, and various other balsams enter without change into the bladder. It is hence that rape-seed communicates an intolerable taste to hares that feed upon it, and that the flesh of sheep feeding upon wormwood acquires the bitter flavour of this plant. So, the buckthorn gives a cathartic property to the flesh of thrushes that have swallowed it, and scammony to goat's milk. Partridges that have feasted harmlessly on hellebore, often occasion sickness when employed as food; and when oxen have grazed in a pasture abounding with alliaceous plants, the beef they produce possesses the same taste and smell. And hence, phosphate of lime may, in like manner, be conveyed from the stomach to the secernents of the bones, and reach them without chemical decomposition.

Illustrated from parallel facts.

Irritants and rubefacients how far useful.

As rhachia is perculiarly distinguished by a great irritability and want of action, rubefacients and other cutaneous stimulants have often been employed, and proved serviceable, as well from the friction that accompanies their use as their own acuating power. These have sometimes been so far heightened as purposely to excite some degree of fever, with a view of carrying off the disease by this means; as dyspepsy, cephalæa, and chronic rheumatism have often been carried off by a smart attack of a tertian intermittent. We are told that a practice of this kind prevails very generally in the Western Isles, and is

Exemplified.

productive of great success. The heating oil of the skate-fish is rubbed every evening first upon the wrists and ancles of the patient, which raises a fever of several hours' duration: and when the inunction upon these parts has lost its effect, it is then applied, in like manner, to the knees and elbows; and afterwards, in like manner, to the spine; so that a certain degree of pyrexy may be daily maintained. And when friction, on all these organs, is found to fail, as fail it will by degrees, a flannel shirt dipped in the oil is finally had recourse to, and worn on the body, which produces a higher degree of fever than has yet existed; and continues to be worn, after fresh illinations, till a cure is obtained, which is said to be pretty certain, and usually in a short time.

GEN. IV. SPEC. I. Cyrtosis Rhachia. Rickets. Treatment. Second intention.

Many ingenious devices have been executed by surgical instrument makers for giving support to the limbs that seem mostly to suffer, and for removing the weight of the body from one part to another. In infancy, however, all these are of little avail, and where the disease pervades the entire skeleton, they will always do as much mischief as good, by aiding one part at the expense of another. The best mechanical instruments are a hard incompressible couch, and a level floor on which the infant may lie at full length, and stretch his limbs as he pleases. The couch or rather matrass should be made light and moveable and especially unyielding, so that he may be carried upon it in the open air for exercise. Moderate warmth is of great service, but a downy bed that gives way to the pressure of the body and sinks into unequal hollows cannot fail to increase the incurvation *.

Mechanical aids how far advisable.

* On the Nature and Treatment of the Distortions to which the Spine and Bones of the Chest are subject, &c. By John Shaw. 8vo. 1823.

SPECIES II.

CYRTOSIS CRETINISMUS.

Cretinism.

CHIEFLY AFFECTING THE HEAD AND NECK; COUNTENANCE VACANT AND STUPID; MENTAL FACULTIES FEEBLE OR IDIOTIC: SENSIBILITY OBTUSE: MOSTLY WITH ENLARGEMENT OF THE THYROID GLAND.

GEN. IV. SPEC. II. How distinguished from rickets.

CRETINISM makes a very close approach to rickets in its general symptoms. It differs principally in the tendency to the peculiar enlargement of the thyroid gland, which, in France, is denominated goitre, and with us, Derbyshire-neck, and in the mental imbecility which accompanies it from the first.

Occasional precocity of mental powers in rickets;

In treating of rhachitis we observed that, while all the functions of the general frame are here in a state of great debility, with the exception of the mental, these last exhibited, in many instances, a precocity and a vigour rarely found in firm health. And we endeavoured to account for it by supposing that the flow of sensorial fluid instead of being in deficiency, like all the other secretions, is only disturbed in its balance; and that much of the proportion of this, which should be distributed among the motory fibres of the frame, and prevent that inirritability and muscular inertness by which rickets is so peculiarly distinguished, is transferred, under a different modification, to the sensorium, and gives to the mental faculties a more than ordinary degree of quickness.

In cretinism the organ of the brain follows the fate of the other organs, and hence mental weakness.

In cretinism the organ of the brain seems to follow the fate of the rest of the body, and, in many cases, even to take the lead, so that the chief imbecility is to be found in this region. For the peculiar symptom of goitre it is not so easy to account. We know so little of the pur-

pose, and even of the fabric of this gland, as to be incapable of assigning its use in the animal economy, and hence, it is not much to be wondered at that its peculiar tendency to associate, in the present disease, with the morbid condition of the bones and of the intellect, should not hitherto have been ascertained. It does not always, however, accompany the other symptoms, though it is, for the most part, an associate.

GEN. IV. SPEC. II. Cyrtosis Cretinismus. Cretinism.

Appearance of goitre not easily accounted for: yet not always an accompaniment.

We have already observed that cretinism was first distinctly noticed and described by Plater about the middle of the seventeenth century, as occurring among the poor in Carinthia and the Valais; and that it was afterwards found in a still severer degree in other valleys of Switzerland and the Alps generally; as it has since been detected in very distant regions where the country exhibits a similarity of features, as among a miserable race called Caggets, inhabiting the hollows of the Pyrennees, whose district and history have been given us by M. Raymond, and as far off as Chinese Tartary, where it is represented as existing by Sir George Staunton.

Chorography of cretinism.

On the first discovery of cretinism it was ascribed by some to the use of snow-water, and by others to the use of water impregnated with calcareous earth: both which opinions are entirely without foundation. The first is sufficiently disproved by observing that persons born in places contiguous to the glaciers, and who drink no other water than what flows from the melting of ice and snow, are not subject to the disorder, and that Sir John Pringle and Captain Cook have found melted snow or ice-water afford to sea-men a peculiarly wholesome beverage: while on the contrary the disorder is observed in places where snow is unknown, as at Sumatra. The second is contradicted by the fact that the common waters of Switzerland, instead of being impregnated with calcareous matter, excel those of most other countries in Europe in purity and flavour. "There is not", observes Dr. Reeve, "a village, nor a valley, but what is enlivened by rivulets, or streams gushing from the rocks. The water usually drunk at La Batia and Martigny is from the river Dranse,

Whether snow-water be a cause: or water impregnated with calcareous earth.

These opinions without foundation.

Disproof of the first.

Disproof of the second.

Gen. IV. Spec. II. Cyrtosis Cretinismus. Cretinism.

which flows from the glacier of St. Bernard, and falls into the Rhone; it is remarkably free from earthy matter, and well tasted. At Berne the water is extremely pure, yet, as Haller remarks, swellings of the throat are not uncommon in both sexes, though cretinism is rare."

Snow-water from its chilliness may however prove an auxiliary.

As comfortable and genial warmth form one of the best auxiliaries in attemping the cure of both cretinism and rickets, there can be no doubt that the chill of snow-water, if taken as such, must considerably add to the general debility of the system when labouring under either of these diseases, though there seems no reason for supposing that it would originate either.

Why calcareous water should be a supposed cause explained.

It is not difficult to explain why water impregnated with calcareous earth should have been regarded as a cause: for in cretinism, as in rhachia, the calcareous earth designed by nature for building up the bones, is often separated and floats loose in various fluids of the body for want of a sufficiency of phosphoric acid to convert it into a phosphate of lime, and give it solidity. And as it is, in consequence hereof, pretty freely discharged by the urine, it seems to have given rise to the opinion that such calcareous earth was introduced into the system with the common beverage of the lakes or rivers, and produced the morbid symptoms.

Real remote cause assigned by Saussure.

M. de Saussure has assigned a far more probable, and unquestionably the real cause of the disease in referring us to a few other physical features of the Alpine districts in which it makes its appearance chiefly. The valleys, he tells us, are surrounded by very high mountains, sheltered from currents of fresh air, and exposed to the direct, and, what is worse, the reflected rays of the sun. They are marshy, and the atmosphere is hence humid, close, and oppressive. And when to these chorographical causes we add the domestic ones, which are also well known to prevail very generally among the poor of these regions, such as meagre, innutritious food, concerning which we have already spoken under bronchocele, indolence, and uncleanliness, with a predisposition to the disease from an hereditary taint of many generations, we can sufficiently account for the prevalence of cretinism in such places, and

for the most humiliating characters it is ever found to assume.

GEN. IV. SPEC. II. Cyrtosis Cretinismus. Cretinism.

The general symptoms of cretinism are those of rhachia; but the disease shows itself earlier, often at birth, and not unfrequently before this period, apparently commencing with the procreation of the fetus, and affording the most evident proofs of ancestral contamination. The child, if not deformed and cachectic at birth, soon becomes so; the body is stinted in its growth, and the organs in their developement; the abdomen swells, the skin is wrinkled, the muscles are loose and flabby, the throat is covered with a monstrous prominence, the complexion wan, and the countenance vacant and stupid. The cranium bulges out to an enormous size, and particularly towards the occiput, for it is sometimes depressed on the crown, and at the temples; insomuch that to a front view the head, in some cases, appears even diminutive. The blunted sensibility of these wretched beings renders them indifferent to the action of cold and heat, and even to blows or wounds. "They are, generally", observes M. Pinel, "both deaf and dumb. The strongest and most pungent odours scarcely affect them. I know a Cretin who devours raw onions and even charcoal with great avidity. A striking proof of the coarseness and imperfect developement of the organ of taste. Their organs of sight and feeling are equally limited in their operation. Of moral affections they seem wholly destitute; discovering no signs of gratitude for kindness shown to them, nor any attachment to their nearest relations."

Commencement and progress of cretinism.

Why a front view of the head appears diminutive.

Miserable want of sensation,

and of mental and moral powers.

The medical treatment, if medicine can ever be of any avail, should be conducted upon the principles and consist of the process laid down under the preceding species.

Medical treatment.

GENUS V.

OSTHEXIA.

Osthexy.

SOFT PARTS MORE OR LESS INDURATED BY A SUPERFLUOUS SECRETION AND DEPOSITE OF OSSIFIC MATTER.

GEN. V. Origin of the generic name.

OSTHEXIA is derived from ὀστώδης, "osseous or bony", and ἕξις, "habitus or habit",—"ossific diathesis or idiosyncrasy". This morbid affection, though repeatedly alluded to and described by miscellaneous writers, has seldom been attended to in nosological arrangements. It does not occur in Dr. Cullen's Classification; but he alludes to it in his "Catalogue of omitted Diseases", as one of those which he thinks ought not to have been omitted.

Physiological remarks.

We have had various occasions for remarking that as the calcareous earth, which gives compactness and solidity to the skeleton of the animal frame, becomes waste, and is consequently absorbed and carried off, it is necessary that there should be an equal and regular supply of the same material. This is partly obtained from the lime which enters, in some proportion or other, into almost every kind of nutriment on which we feed: but it seems to be obtained also, and perhaps in a larger proportion, by some chemical elaboration out of the constituent principles of the blood itself: for a healthy animal of any kind appears to supply itself with the requisite quantity of bony earth whatever be the nature of its food, and though the soil on which it is grown contains no lime whatever, as is the case in several of the Polynesian islands, and throughout the whole of New South Wales, on the hither side of the Blue Mountains.

In several of the preceding genera we have seen that this material is produced or secreted in deficiency: in the species appertaining to the present genus, it is, on the contrary, produced or secreted in excess: and deposited, sometimes in single organs for which it is not naturally intended, and sometimes throughout the system at large, occasionally in the parenchyma or general substance of organs, and occasionally in the membranes or tunics by which they are covered and protected, or in the vessels by which they are furnished with their proper stores.

Gen. V. Osthexia. Osthexy. Calcareous earth in osthexy produced in excess and deposited in single organs, or over the whole frame.

We see much of this irregularity in old age the cause of which we have already endeavoured to explain. The excernent vessels of both sets, absorbents and secretories, partake of the common debility and torpitude of this advanced period. There is hence, in all probability, a smaller quantity of lime, as of every other secerned material, formed at this period than in the earlier and more vigorous stages: but, however small the quantity, it is carried off, on account of the grossness of its corpuscles, less freely by the debilitated absorbents than the finer and more attenuate fluids, and is hence apt to stagnate first in the bones themselves, which, as we have already observed, are hereby rendered unduly impacted and brittle, and next in the lymphatics of every part of the system, and especially those that enter into the tunics of the sanguiferous vessels, which are hereby often rendered rigid or even ossific.

Ossification in old age not from excess of the material but from a torpitude of the secernents and absorbents.

This is a natural consequence of the debility of advancing years. But we not unfrequently meet with a like effect in the earlier stages of life, and in persons of the fullest and most vigorous health: in which case there can be no question that the lime thus profusely and erratically deposited, is produced and secreted in excess, andconsequently by a state of action the very reverse of that we have thus far contemplated.

When osthexy occurs in earlier life and in vigorous health excess of secretion unquestionable.

The mischief thus originating, lays a foundation, as it appears in the parenchyma, or in the membranes or vessels of organs, for two very distinct trains of

GEN. V. Osthexia. Osthexy.

symptoms, and may be contemplated under the two following species:

1. OSTHEXIA INFARCIENS. PARENCHYMATOUS OSTHEXY.
2. ——— IMPLEXA. VASCULAR OSTHEXY.

SPECIES I.

OSTHEXIA INFARCIENS.

Parenchymatous Osthexy.

OSSIFIC MATTER DEPOSITED IN NODULES OR AMORPHOUS MASSES, IN THE PARENCHYMA OF ORGANS.

GEN. V. SPEC. I. Found most commonly in the kidneys and bladder: but here detached and with peculiar symptoms.

THE most common organs in which calculous concretions are found, are the kidneys and the bladder; but, as in these they form detached and unconnected balls, and are intimately united with local symptoms or a morbid state of these organs, and constitute only one of various kinds of concretions, it will be most convenient to consider them when treating of the particular diseases to which they give rise, or of which they are prominent symptoms.

Found interiorly, mostly in the pineal gland.

The organ in whose interior fabric the present concretions are most usually found, seems to be the pineal gland; of which almost all the medical and physiological journals, as well domestic as foreign, give numerous examples, as do likewise Diemerbroeck, De Graaf, Schrader, and other monographists. In this gland they have also been found in other animals than man, chiefly those of the deer kind.

Often found in other organs.

Such deposits are also frequently found in various other parts of the substance of the brain; in the lungs *;

* Baillie, Morb. Anat. Fasc. II. Pl. 6.

in the substance of the heart, in one instance weighing two ounces *; in the thymus gland †; in the thyroid ‡; in the parotid §; the sublingual, and most other glands ||; in the deltoid and most other muscles: nor is there an organ in which it has not been traced on different occasions. Paullini records one instance of an ossified penis: in the Ephemera of Natural Curiosities, we meet with another ¶: and M. Forlenze has lately met with an extensive ossification in the globe of the eye. The sclerotic was natural, but not only the crystalline lens, which is often found in this state, but the iris and the vitreous humour were completely ossified **.

Gen. V. Spec. I. Osthexia infarciens. Parenchymatous osthexy.

Found in the globe of the eye.

The general pathology we have already given: the symptoms and effects vary to infinity. Most of the above cases seem to have occurred after the meridian of life; and, in many instances, to have been connected with atonic gout, which, by adding to the debility of advancing age, adds to its tendency to form such deposites.

General pathology already given.

SPECIES II.

OSTHEXIA IMPLEXA.

Vascular Osthexy.

OSSIFIC MATTER DEPOSITED IN CONCENTRIC LAYERS IN THE TUNICS OF VESSELS OR MEMBRANES, RENDERING THEM RIGID AND UNIMPRESSIBLE.

ALL the vessels and membranes, as well as the more massy or complicated organs of the body, are subject to

Gen. V. Spec. II. All the vessels and membranes subject to earthy deposites from causes already stated,

* Burnet, Thesaur. Med. Pract. III. 254.
† Act. Med. Berol. Tom. I. Dec. III. 28.
‡ Contuli, De Lapid. &c. § Platter, Observ. Lib. III. 707.
|| Haller, Pr. de induratis corp. hum. partibus Göett. 1753.—Pranser, Diss. de indurationc corp. in specie ossium. Leips. 1705.
¶ Dec. II. Ann. V.
** Dict. des Sciences Medicales, Art. Cas. Rares.

GEN. V. SPEC. II. Osthexia implexa. Vascular osthexy.

deposites of phosphate or carbonate of lime, from the causes already pointed out: some of which are those of weak and others of entonic action: the former operating upon the debilitated and the aged, the latter upon the young and vigorous, who labour under a peculiar diathesis or predisposition to the formation of bony earth. The chief modifications appertaining to this species may be contemplated under the following varieties:

α	Arterialis. Arterial osthexy.	Ossification of the aorta or other large arteries.
β	Membranacea. Membranous osthexy.	Ossification of membranous or connecting parts.
γ	Complicata. Complicated osthexy.	Ossification of different parts simultaneously.

α O. implexa arterialis. Arterial ossification.

When in the aorta rarely confined to it.

Exemplified.

Where the DEPOSITE TAKES PLACE IN THE AORTA, it is rarely confined to this artery alone, but spreads to some parts of the heart, and, perhaps, of the pulmonary, or some other large artery as well. Dr. Baillie gives an instance in which a considerable portion of the right ventricle and right auricle of the heart were affected at the same time *; and Morgagni another in which the ossification extended to the valves, and this too without having produced in the patient either palpitation or dyspnœa †. So wonderfully is the instinctive or remedial power of nature capable, in various instances, of accomodating the general system to morbid changes.

We have other examples of the trunk of the aorta being wholly ossified ‡, and in one case so rigidly, both in its ascending and descending branches, as to compel the sufferer to maintain an erect position §.

β O. implexa membranacea. Membranous ossification.

The most troublesome of the membranous ossifications are those of the pleura, of which an example is given by Dr. Baillie in his Morbid Anatomy ‖: though the trachea affords at times severe and even fatal examples of this affection ¶, in consequence of the stricture which is hereby

* Morb. Anat. Fasc. v. Pl. 2.
† De Sed. et Caus. Ep. xxiii. 11.
‡ Buchner, Miscel. 1727, p. 305.
§ Guattani, De Aneurism, &c.
‖ Fascic. ii. Pl. 1.
¶ Kirkring, Specileg. Anat. Obs. 27.

occasionally produced. Mr. Chester gives a singular case of a spread of this disease over the thoracic duct, the ileum, and other abdominal viscera.

GEN. V. SPEC. II. β O. implexa membranacea. Membranous ossification.

Yet, in the structure of the arteries, ossification is found more frequently than in any other organ, with the exception of the pineal gland: the cause of which seems to have been first glanced at by Dr. Hunter, and was afterwards followed up with much patient investigation and accuracy of research by Mr. Cruikshank. The former used to send round at his lectures a preparation of the patella, in which he demonstrated that the ossification of that bone began in the arteries running through the centre of the cartilage which, in young subjects, supplies the place of a bony patella. Mr. Cruikshank on prosecuting the subject, discovered that all other bones ossify in the same manner, and made preparations in proof of this fact; distinctly showing that the ossification of bones is not only begun, but carried on and completed by the ossification of their arteries: and, consequently, that arteries have a natural tendency to become ossific above that of all other parts of the system whatever.

Yet the disease found more frequently in the arteries than in any part, except the pineal gland: why found thus freely, illustrated.

γ O. implexa complicata. Complicated osthexy. Singular example.

One of the most extensive appearances of this habit acting morbidly on the tunics of vessels, is related by Dr. Heberden in the Medical Transactions *, in the case of a very old man who at last died suddenly, as well indeed he might, since almost the only viscus that was found, on examination, to be in a healthy state was the liver. The internal carotid and basilary arteries with many of their primary branches were ossified. Through the substance of the lungs, which firmly adhered to their walls, were scattered small calculous tumours. In the heart the valves of the left auriculo-ventricular opening were partially ossified, those of the aorta completely so, and small depositions of bony matter were found in the tendinous portions of the carneæ columnæ. The coronary artery was ossified through its whole extent. The descending thoracic and abdominal aorta, with all their primary branches, were converted into cylinders of bone, as were

* Vol. v. Art. xiii.

Gen. V. Spec. II. γ O. implexa complicata. Complicated osthexy.

the external and internal iliacs. It is not necessary to pursue the description into the morbid appearances of almost every other organ: and I shall only observe farther that though the substance of the brain was healthy, the ventricles contained about eight ounces of water. And yet with all this extent of diseased structure, the patient appeared almost to the last to be of a sound constitution and free from the usual infirmities of advanced age, with the exception of an habitual deafness; and attained upwards of fourscore years of age before he died.

The patient sometimes so stiffened as to lose all power of motion. Exemplified.

Where this diathesis prevails very decidedly, it sometimes converts not merely the vessels but the whole of the tendons and the muscles into rigid bones, and renders the entire frame as stiff and immoveable as the trunk of a tree. There is a striking illustration of this remark in a case communicated to the Royal Society by Dr. Henry of Enniskillen *. The patient was a day labourer who had enjoyed good health till the time of his being attacked with this disease. It commenced with a pain and swelling in the right wrist, which gradually assumed a bony hardness, and extended up the course of the muscles as high as the elbow, the whole of which were converted into a like hardness, and were of double their natural size. The left wrist and arm followed the fate of the right: and the line of ossification next shot down to the extremities of the fingers on both sides, and afterwards up to the shoulders, so that the joints were completely ancylosed, and the man was pinioned. At the time of communicating this history, the same ossific mischief had attacked the right ancle with a like degree of pain, swelling, and bony induration up the course of the muscles: in which state the man was discharged from the hospital as incurable, after salivation had been tried to no purpose.

Medical treatment.

Salivation of no use: where the cause is debility.

Salivation has, indeed, often been tried, probably from its success in removing venereal nodes, but it does not seem to have been of much more avail in any instance than in the present.

* Phil. Trans. Vol. LI. year 1759.

Gen. V. Spec. II. γ O. implexa complicata. Complicated osthexy. Medical treatment.

We have pointed out two opposite causes, or rather states of body, in which a tendency to ossification chiefly shows itself. One is that of general debility, and the other of an entonic action in the assimilating organs which are chiefly concerned in the fabrication or separation of lime: and in laying down any plan for relief, it seems necessary to attend to this distinction. Where debility becomes a predisponent of morbid ossification, it is mostly a result or concomitant of old age, a scrophulous diathesis or atonic gout: and in all these cases warmth, a generous diet, and tonic course of medicines will form the most reasonable curative plan that can be pursued; and that which will tend most effectually to stimulate the absorbents, and prevent that retardation of bony earth in the lymphatics and vasa vasorum, on which we have already shown the disease to depend in this modification of it.

Warmth, a generous diet, and tonic plan of medicines requisite.

Where the disease occurs in the middle and vigour of life, a reducent plan necessary, with copious allowance of diluent drinks, a free use of acids in both.

On the contrary, where it occurs in the middle and vigour of life, and we have reason to believe from the existence of too much action in vessels which we cannot very accurately follow up, a reducent plan will be far more likely to prove successful. We should bleed and move the bowels freely, and restrain the patient to a low diet with a copious allowance of diluent drinks.

And in both cases with a view of dissolving, as far as we are able, the calcareous matter that may morbidly exist in the system already, or be on the point of entering into it, we should prescribe a free use of the mineral or vegetable acids, as already recommended under PAROSTIA *fragilis*.

CLASS VI.

ECCRITICA.

ORDER II.

CATOTICA.

Diseases affecting Internal Surfaces.

PRAVITY OF THE FLUIDS, OR EMUNCTORIES THAT OPEN INTO THE INTERNAL SURFACES OF ORGANS.

Class VI. Order II. Origin of ordinal term.

CATOTICA is derived from *κάτω*, "infra", whence *κατώτερος* and *κατώτατος*, " inferior", and " infimus." The order includes four genera as follows, some of which will be found of extensive range:

I.	HYDROPS.	DROPSY.
II.	EMPHYSEMA.	INFLATION. WIND-DROPSY.
III.	PARURIA.	MISMICTURITION.
IV.	LITHIA.	URINARY CALCULUS.

GENUS I.

HYDROPS.

Dropsy.

PALE, INDOLENT, AND INELASTIC DISTENTION OF THE BODY, OR ITS MEMBERS, FROM ACCUMULATION OF A WATRY FLUID IN NATRAL CAVITIES.

GEN. I. Origin of the generic term.

HYDROPS is a Greek term (ὕδρωψ) importing an accumulation of water: and in nosology there is no genus of diseases that has been more awkwardly handled. The term hydrops does not occur in Sauvages, Linnéus, or Sagar, and only once in Vogel in the compound hydrops *scroti*. Linnéus connects anasarca and ascites, its chief species, with tympanites, polysarcia, or corpulency, and graviditas or pregnancy, into one ordinal division, which he names TUMIDOSI, and of which these constitute distinct genera. Sagar arranges all the same under the ordinal division CACHEXIÆ. Vogel pursues the same plan with the omission of graviditas or pregnancy, which he does not choose to regard as a cachexy. Sauvages employs the term *hydropes*, but only in connexion with *partiales*, in order ro restrain it to local dropsies: so that with him ascites is a hydrops, but anasarca is not a hydrops, and does not even belong to the same order; it is an *intumescentia*, under which, as in the arrangement of Linnéus, it is united with corpulency, and pregnancy; while hydrops *thoracis* is an anhelatio, and occurs in a distinct place and volume.

Synonyms: and examinations of former arrangements.

Dr. Cullen has certainly, and very considerably, improved upon his predecessors in this range of diseases. After Sauvages he takes INTUMESCENTIÆ for the name

GEN. I. Hydrops. Dropsy.

of his order; but divides it into the four sections of adiposæ, flatuosæ, aquosæ vel hydropes, and solidæ; while under the third section (the aquosæ vel hydropes) he introduces all the family of dropsies, whether general or local, instead of sending them, with those who preceded him, to different quarters. It would, however, have been a much greater improvement, and have added to the simplicity he aimed at, to have employed hydrops as a generic, instead of hydropes as a tribual or family term.

Hydrops first employed by Boerhaave in its present scope.

It is to Boerhaave we are indebted for the first use of hydrops as employed in the present method; and he has been followed by Dr. Macbride and Dr. Young with a just appreciation of his correctness.

The species of this genus, which extend over the body generally, or almost all the different parts of it, are the following:

1.	HYDROPS CELLULARIS.	CELLULAR DROPSY.
2.	——— CAPITIS.	DROPSY OF THE HEAD.
3.	——— SPINÆ.	——— SPINE.
4.	——— THORACIS.	——— CHEST.
5.	——— ABDOMINIS.	——— BELLY.
6.	——— OVARII.	——— OVARY.
7.	——— TUBALIS.	——— FALLOPIAN TUBE.
8.	——— UTERI.	——— WOMB.
9.	——— SCROTI.	——— SCROTUM.

Before we enter upon a distinct view of the history and treatment of these several species, it may be convenient to give a glance at the general pathological principles which apply to the whole.

All dropsies from like causes.

All dropsies proceed from similar causes, which, as they are general or local, produce a general or local disease.

Predisponent cause: remote causes numerous.

The common predisponent cause is debility. The remote causes are very numerous, and most of them apply to every form under which the disease makes its appearance; for the accumulation of watery fluid which constitutes the most prominent symptom of the malady, may be produced by a profuse halitus from the terminal arteries

occasioning too large a supply of that fine lubricating fluid which, as we have observed in the Physiological Proem to the present Class, flows from the surface of all internal organs and enables them to play with ease and without attrition upon each other; it may be produced by a torpid or inactive condition of the correspondent absorbents occasioning too small a removal of this fluid, when it has answered its purpose and is become waste matter; or it may be produced by each of these diseased conditions of both sets of vessels, operating at the same time; and it is to this double deviation from healthy action that Dr. Cullen applies the name of an hydropic diathesis.

GEN. I. Hydrops. Dropsy.

Want of action on the part of the absorbents is, in every instance, the result of debility. Profuse exhalation on the part of the secernents or terminal arteries, in most cases, proceeds from a like cause, for it takes place from a relaxed state of these vessels, which open their mouths too widely, and suffer the serum or other aqueous fluid to escape with too much freedom.

Further illustrated.

Dropsy is, in most instances, therefore, a disease of debility; and, if we minutely attend to the histories of those who are suffering from this disease, we shall generally find that they have for some time antecedently been labouring under debility either general or local: that they are weakened by protracted fevers; or languishing under the effects of an unkindly lying-in; that they have unstrung their frames by a long exposure to a cold and moist atmosphere; or have worn themselves out by hard labour; or, which is still worse, by hard eating and drinking; or that they are suffering from habitual dyspepsy or some other malady of the stomach or chylopoëtic organs, especially the liver, which destroys or deranges the digestive process, and hence lays a foundation for atrophy. And, for the same reason, innutritious or indigestible food is a frequent cause of some species of this disease*: as is also great loss of blood from

Dropsy mostly a disease of debility: and the nature of the debility often obvious.

Sources of debility enumerated.

* Obererzgebürgisches Journ. IV. St.

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any organ, and especially when such discharge becomes periodical.

Local debility often produces the same effect as general debility: where the weakened organ strongly sympathizes with the affected exhalants.

Where the digestive organs are in a very morbid state dropsy may take place as a result of general debility; but it more commonly occurs from that peculiar sympathy which prevails so strikingly between the two ends of the extensive chain of the nutritive, or, in other words, the digestive and assimilating powers, which we had occasion to explain when treating of marasmus*: the inertness and relaxation of the excernent vessels being, in this case, produced by the torpitude of the chylopoëtic viscera; and the usual forms of dropsy being those of the cellular membrane or of the abdomen. Hence a single indulgence in large draughts of cold drinks, and especially of cold water, when the system is generally heated and exhausted has occasionally proved sufficient to induce dropsy in one of these forms; of which we have a striking example in the army of Charles V. during its expedition against Tunis, the greater part of it, as we are told by De Haen, having fallen into this disease in consequence of having freely quenched their thirst with cold water in the midst of great fatigue and perspiration†.

Hence torpitude of the chylifactive viscera a cause from sympathy.

Torpitude of the cutaneous exhalants act in the same manner.

A like sympathy not unfrequently takes place between several other organs and the mouths of the excernents: as the skin and the uterus: the former as loaded with an extension of the same terminal vessels, and the latter as maintaining an influence over almost every part of the frame. It was partly perhaps from sympathy with the skin, and as participating in the chill and consequent collapse of its capillaries produced by the coldness of the beverage, that the excernent system became affected in the extensive dropsy just alluded to in the army of Charles V. And we frequently perceive a similar effect on a sudden suppression or repulsion of cutaneous eruptions, the mouths of the excernent vessels opening into internal cavities partaking of the torpitude of the cutaneous capillaries. The

* Vol. II. Cl. III. Ord. IV. Gen. III. opening remarks.

† Rat. Med. Part V. 30. 90.

sympathetic influence exercised over the same vessels by a morbid state of the uterus is not less manifest: for in chlorosis the abdomen becomes tumid, and the lower limbs edematous; and, on the cessation of the catamenia, cellular or abdominal dropsy are by no means uncommon.

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As also a morbid state of the uterus.

Such are the general causes of cellular dropsy as well proximate as predisponent. But there are a few other causes which it is necessary to enumerate as acting occasionally, though the effects produced by some of them can hardly be called dropsy in the proper and idiopathic sense of the term.

Other supposed occasional causes:

In the first place, the absorbents are supposed by some pathologists, as M. Mezler* and Dr. Darwin, to be at times affected with a retrograde action, and hence to pour forth into various cavities of the body a considerable mass of fluid instead of imbibing and carrying it off. Next, the exhalants of an organ, though themselves in a state of health, may throw forth an undue proportion of fluid in consequence of some stimulus applied to them. The most common stimulus to which they are exposed is distention, and that by a retardation of the blood in the veins, and a consequent accumulation in the arteries. This retardation or interruption of the flow of venous blood may arise from diseases of the right ventricle of the heart or its valves; from various affections of the lungs or their surrounding muscles; from an upright posture continued without intermission for many days and nights, as is often the case in monthly nurses; from a gravid uterus, whence the edematous ancles of pregnant women; from scirrhous or other obstructions in the liver or spleen; from polypous concretions in the veins, aneurisms in the arteries, or steatomatous or other hard tumours in the vicinity of the larger arterial trunks.

Retrograde motion of the absorbents.

Stimulus of distention by a retardation of blood in the veins.

Illustrated.

In some cases inflammation succeeds to distention, and the quantity of fluid poured forth is still more considerable. It is from this double source of stimulus, distention and inflammatory action, that the ventricles of the brain

Hence dropsy of the ventricles of the brain in meningic cephalitis.

* Von der Wassersucht.

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become filled in meningic cephalitis, and the cavity of the pericardium occasionally in carditis, and hence Dr. Stoker with a view of exemplifying and supporting the humoral pathology, has divided dropsies into two kinds, dynamic and adynamic, these evincing too much action, and those evincing too little*.

Dynamic and adynamic dropsy.

Rupture of the thoracic duct, or lacteal vessels.

Thirdly, the aqueous fluid of a cavity may be unduly augmented, and consequently dropsy ensue, from a rupture of the thoracic duct, or of a large branch of the lacteal vessels. These, however, are not common causes; the lymphatics of the kidneys may, perhaps, most frequently have occasioned the disease when ruptured by accident or idiopathic affection in the case of renal ischury; during which the watery parts of the blood that should pass off by the kidneys have been thrown back into the system, and lodged in some cavity. And it is probable that when dropsy follows upon long exposure to a cold damp atmosphere, it is produced, in some instances, in the same manner; the fluid that should pass off by the exhalants of the skin, but which cannot in consequence of having lost their power; being, in like manner thrown back into the blood and transferred to and accumulated in improper channels.

Rupture of the lymphatics of the kidneys:

Absorption of moisture from the atmosphere:

insatiable thirst.

Morbid tenuity of the blood.

Fourthly, the skin is said, at times, to be in a condition to absorb moisture too freely from the atmosphere†; the stomach is said, as in the case of DIPSOSIS *avens*, to demand too large a quantity of liquids to quench its insatiable thirst‡; and the blood is said to be in a state of preternatural tenuity from saline acrimony§; and each of these conditions it is affirmed has occasionally proved a source of dropsy. The first of these unquestionably occurs at times during dropsy, and all of them may have operated as causes: but preternatural tenuity of blood, adequate to and producing such an effect is very uncommon from any cause; and the remedial power of nature

* Pathological Observations, &c. Part I. p. 16. Dubl. 8vo. 1823.

† Erastus, Disp. IV. p. 206.—De Haen, Rat. Med. P. IV. p. 125. seq.

‡ Büchner, Miscell. 1730. p. 888.—Mondschien, p. 12.

§ Galen, De Lymph. Caus. Lib. III. cap. 8.—Van Swieten ad Sect. 1229.

is at no loss for means to carry off a superabundance of fluidity introduced by any means into the system, provided the excernent function itself be not diseased.

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From this diversity of causes we may reasonably expect that the dropsical fluid discharged upon tapping should exhibit different properties, not only in different organs, but in different cases in the same organ. And hence, it is sometimes found nearly as thin as water, incapable of coagulating when exposed to heat, which only renders it turbid; while, at other times, it flows in a ropy state, and accords, upon exposure to heat, with the natural serum of the blood. A similar discrepancy is discoverable in its colour or some other condition; for it has sometimes been found black and fetid *, bloody, sanious, milky †, green ‡, yellowish, or peculiarly acrid §. In some instances it has resembled the glairy ichor of sores in a languid constitution or degenerated habit; and according to Guathani and Steidele it has at times appeared oily ‖. It has been occasionally so urinous or ammoniacal as to turn syrup of red poppies green ¶: and, according to Dr. M'Lacklan, has sometimes contained so much soda as by the addition of sulphuric acid to produce Glauber's salt ** with little or no trouble.

Hence the fluid of dropsy very different in different dropsies, in viscidity, coagulability, and colour.

From the nature of the fluid itself, therefore, we have a clear proof that the causes of dropsy must be different in different cases. In augmented secretion, impeded absorption, or the rupture of a lymphatic vessel, the accumulated fluid should contain nothing more than the ordinary constituents of the halitus that naturally moistens the cavity into which it is discharged. A relaxed state of the exhalants may admit particles of greater bulk, and even red blood: in which case the fluid may differ both

The subject further illustrated.

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* Galeazzi, in Com. Bonon. Tom. VI.
† Willis, Pharmaceutice Rationalis.—Med. Com. of Edinb. Vol. V.
‡ Rücker, Comm. Lib. Nor. 1736.
§ Du Verney, Mémoires de Paris, 1701. p. 198.
‖ Guat. De Aneurismatibus.—Steid. Chirurg. Beobacht. B. I.
¶ De Haen, Rat. Med. P. XI. p. 214.
** Med. Comm. Edinb. IX. 11.

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in viscidity and colour. While, on the other hand, morbid collections of water must proceed from a cause of a very different nature; probably from the exhalant arteries being themselves so altered by disease as to change the properties of the fluid which passes through them: or the general mass of blood being so attenuate or otherwise vitiated as to affect the secretion. In the last case, dropsy is not a primary disease, but the consequence of some other, generally perhaps of a morbid liver, spleen, or morbid lungs *.

SPECIES I.

HYDROPS CELLULARIS.

Cellular Dropsy.

COLD AND DIFFUSIVE INTUMESCENCE OF THE SKIN, PITTING BENEATH THE PRESSURE OF THE FINGERS.

Gen. I. Spec. I.

This species includes three varieties, as it is general to the cellular membrane, limited to the limbs, or accompanied with a combination of very peculiar symptoms, and especially severe, and in most cases fatal, dyspnœa:

α Generalis. General Dropsy.	Extending through the cellular membrane of the whole body.
β Artuum Edema.	Limited to the cellular membrane of the limbs, chiefly of the feet and ancles; and mostly appearing in the evening.
γ Dyspnoica. Dyspnetic Dropsy.	Edematous swelling of the feet, stiffness and numbness of the joints; the swelling rapidly

* Hewson Descript. of the Lymph. Syst. Ch. xii.

ascending to the belly, with severe and mostly fatal dyspnœa.

Gen. I. Spec. I. Hydrops cellularis. Cellular Dropsy.

It is under the first of these varieties that cellular dropsy usually appears as an idiopathic affection. Where the intumescence is confined to the limbs, it is usually a symptom or result of some other affection, as chlorosis, suppressed catamenia or any other habitual discharge; a disordered state of the habit produced by a cessation of the catamenial flux; repelled eruptions; or the weakness incident upon protracted fevers, or any other exhausting malady.

α H. cellularis generalis. General Dropsy.

β H. cellularis artuum Edema.

The third variety is introduced upon the authority of Mr. W. Hunter, and taken from his Essay, published at Bengal in 1804. The disease appeared with great frequency among the Lascars in the Company's service in 1801. Its attack was sudden and its progress so rapid that it frequently destroyed the patient in two days. From the description it does not seem to have been connected with a scorbutic diathesis: and Mr. Hunter ascribed it to the concurrent causes of breathing an impure atmosphere, suppressed perspiration, want of exercise, and a previous life of intemperance. All or any of these may have been auxiliaries, but the exciting cause does not seem to have been detected. It is a frequent symptom in beribery.

γ H. cellularis dyspnoica. Dyspnetic Dropsy: as described by Hunter in Bengal.

The second and third varieties, however, may be regarded as the opening and concluding stages of cellular dropsy: for before the disease becomes general it ordinarily shows itself in the lower limbs, and in its closing scene the respiration is peculiarly difficult and forms one of its most distressing symptoms.

General predisponent cause.

General or local debility is the predisposing cause, ordinarily brought on by hard labour, intemperance, innutritious food, fevers of various kinds, exhausting discharges, or some morbid enlargement of the visceral or thoracic organs that impedes the circulation of the blood, and produces congestion and distention.

Occasional causes.

Disease common to all ages, though mostly to the old.

The disease is hence common to all ages though most frequently found in advanced life; the edema of the feet and ancles, with which symptoms it opens, appears at first

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only in the evening, and yields to the recumbent position of the night. By degrees it becomes more permanent and ascends higher, till not only the thighs and hips, but the body at large is affected, the face and eye-lids are surcharged and bloated, and the complexion instead of the ruddy hue of health, is sallow and waxy. A general inactivity pervades all the organs, and consequently all their respective functions. The pulse is slow, often oppressed, and always inelastic: the bowels are costive, the urine for the most part small in quantity, and consequently of a deeper hue than usual: the respiration is troublesome and wheezy, and accompanied with a cough that brings up a little dilute mucus which affords no relief to the sense of weight and oppression. The appetite fails, the muscles become weak and flaccid, and the general frame emaciated. Exertion of every kind is a fatigue, and the mind, partaking of the hebetude of the body, engages in study with reluctance, and is overpowered with drowsiness and stupor.

Commencement.

Description.

Progress.

An unquenchable thirst is a common symptom; and where this is the case the general irritation that is connected with it sometimes excites a perpetual feverishness that adds greatly to the general debility. In some parts the skin gives way more readily than in others, and the confined fluid accumulates in bags. At other times the cuticle cracks, or its pores become an outlet for the escape of the fluid, which trickles down in a perpetual ooze. The difficulty of breathing increases partly from the overloaded state of the lungs, and partly from the growing weakness of the muscles of respiration: the pulse becomes feebler and more irregular, slight clonic spasms occasionally ensue, and death puts a termination to the series of suffering. Yet the progress is slow, and the disease sometimes continues for many years.

Termination.

Medical treatment.

In attempting a cure of cellular dropsy, and indeed of dropsy in general, for it will be convenient to concentrate the treatment, we should first direct our attention to the nature of its cause with a view of palliating or removing it. We are next to unload the system of the weight that op-

presses it. And lastly to re-establish the frame in health and vigour.

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Simple edema, or swelling of the extremities is often, as we have already observed, a symptom or result of some other complaint, as chlorosis or pregnancy, or some other cause of distention. In the two last cases it may be palliated by bleeding, a recumbent position, and other means adapted to take off the pressure. In chlorosis it can only be relieved by a cure of the primary affection. In like manner, general dropsy may be dependent upon a habit of intemperance, or a sedentary life, or imnutritious food, or an obstinate fit of jaundice; and till these are corrected no medicinal plan for evacuating the accumulated water can be of any avail. For, if we could even succeed in carrying it off, it would again collect, so long as the occasional cause continues to operate.

General course to be pursued.

The cause to be removed or palliated wherever possible.

The occasional cause, however, may no longer exist, as where it has been produced by a fever or an exanthem that has at length ceased though it has left the constitution an entire wreck. Or it may exist and be itself incurable, as where it proceeds from a scirrhous induration or some other obstruction of one of the larger viscera of the thorax or abdomen: and in this case our object should be to remove with all speed the mischievous effects, and palliate the organic cause, as far as we are able, according to its peculiar nature, so that it may be less operative hereafter.

The mischievous effects to be removed:

A removal of the accumulated fluid from the cellular membrane generally has been attempted by internal and external means, as hydragogues of various kinds, and scarification or other cutaneous drains.

by Internal and external means.

Internal means.

The HYDRAGOGUES or expellents of water, embrace medicines of all kinds that act powerfully on any of the excretories, though the term has sometimes been limited to those that operate on the excretories of the intestines alone. And it becomes us therefore to contemplate them under the character of purgatives, emetics, diaphoretics, and diuretics.

Hydragogues, which may include purgatives, emetics, diaphoretics, and diuretics.

The purgatives that have been had recourse to are of

Purgatives general and

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two kinds, those of general use, and those that have been supposed to act with some specific or peculiar virtue in the removal of the dropsical fluid.

supposed to be specific.

General purgatives.

Among the first we may rank calomel, colocynth, gamboge, scammony, jalap, and several other species of convolvulus, as the greater white bind-weed (convolvulus *Sepium*, Linn.): the turbeth plant (c. *Turpethum*, Linn.): and the brassica *marina*, as it is called in the dispensatories (c. *Soldanella*, Linn.). These may be employed as drastic purgatives almost indiscriminately, and their comparative merit will depend upon their comparative effect, for one will often be found to agree best with one constitution and another with another. We need not here except calomel, unless indeed, where given for the purpose of resolving visceral infarctions; since in any other case it can only be employed in reference to its influence upon the excretories generally, and particularly those of the intestinal canal.

Purgatives supposed to act specifically.

The purgatives that have been supposed to operate with a specific effect in dropsies are almost innumerable. We must content ourselves with taking a glance at the following, grana Tiglia, or bastard ricinus; elaterium: elder, and dwarf elder; black hellebore; senega; and crystals of tartar.

Croton Tiglium or Bastard ricinus.

The CROTON *Tiglium*, or bastard ricinus, affording the grana Tiglia of the pharmacopœias, is an acrid and powerful drastic in all its parts, root, seeds, and expressed oil. The oil is of the same character as the oil of castor, but a severer and more acrimonious purge; insomuch, indeed, that a single drop prepared from the dry seeds is often a sufficient dose; while a larger quantity proves cathartic when rubbed on the navel. In India the seeds themselves have long been given as a hydragogue; two being sufficient for a robuster constitution, one for a weaklier; and four proving sometimes fatal. By far the safest mode of giving it is in an alkoholic solution, as practised by Dr. Nimmo*, since by such a diffusion, it has less chance of griping or producing inflammation.

In an alkoholic solution.

* Journ. of Science, XIII. 62.

From the uncertainty and violence of the action of this plant, the ELATERIUM or inspissated juice of the wild cucumber, is a far preferable medicine for the present purpose. Elaterium itself, however, has been objected to as unduly stimulant; and both Hoffman and Lister, who as well as Sydenham strongly recommend it, observe that its effect in increasing the pulse is perceivable even in the extremities of the fingers. It is on this account that it seems chiefly to have been neglected by Dr. Cullen, who admits that he never tried it by itself, or otherwise than in the proportion of a grain or two in composition with other purgatives. And it is hence, also, that attempts have been made to obtain a milder cathartic from the roots of the plant by infusion in wine or water*, than from the dried fecula of the juice, which is the part ordinarily employed. Admitting the stimulant power here objected to, it would only become still more serviceable in cold and indolent cases from local or general atony; but even in irritable habits in cellular dropsy, I have found it highly serviceable in a simple and uncombined state, produced, as it ultimately appeared, and especially in one instance, from a thickening of the walls of the heart, in a young lady of only thirteen years of age. It is best administered in doses of from half a grain or a grain to two grains, repeated every two or three hours for five or six times in succession according to the extent of its action. Evacuation by the alvine canal is the most effectual of any; nor can we depend upon any other evacuation unless this is combined with it.

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Elaterium or juice of wild cucumber.

The elder tree, and dwarf elder (Sambucus *nigra*, and s. *Ebulus*) have been in high estimation as hydragogues by many practitioners. Every part of both the plants has been used; but the liber or inner bark of the first, and the rob or inspissated juice of the berries of the last, have been chiefly confided in. Dr. Boerhaave asserts that the expressed juice of the former given from a drachm to half an ounce at a dose, is the most valuable of all the medi-

Sambucus nigra and S. Ebulus. Elder and dwarf elder.

* Boulduc, Hist. de l'Acad. Royal de Sciences de Paris.

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cines of this class, where the viscera are sound: and that it so powerfully dissolves the crasis of the different fluids, and excites such abundant discharges that the patient is ready to faint from sudden inanition. Dr. Sydenham confirms this statement, asserts that it operates both upwards and downwards, and in no less degree by urine, and adds that, in his hands it has proved successful in a multitude of hydropic cases *. Dr. Brocklesby preferred the interior bark of the dwarf elder †, as Sydenham and Boerhaave did that of the black, or common elder. Dr. Cullen seems to have been prejudiced against both, though he admits that he never tried either, notwithstanding that he had often thought of doing so ‡: and it is chiefly, perhaps, from his unfavourable opinion of their virtues, that they seem in our own day to have sunk into an almost total disuse. Chesneau employed indifferently the seeds, and their expressed oil, the root and the inspissated juice of the root; though he preferred the s. *Ebulus* to the s. *nigra* §.

Melampodium or Black hellebore.

The melampodium or black hellebore, was at one time a favourite cathartic in dropsies, and has the testimony of high authorities for having very generally proved efficacious and salutary. The ancients found the plant which they employed under this name so severe in its purgative qualities, that they were obliged to use it with great caution; but we have reason to believe that the black hellebore of the present day is a different production, as it is milder in its effects than the hellebore of Dioscorides, and different in some of its external characters. Its root was the part selected, and the fibres of the roots, or their cortical part, rather than the internal. These were employed either in a watery infusion or extract. Mondschein ‖ preferred on all occasions, the latter; Quarin used either indifferently ¶. Bacher invented a pill which was once in very high reputation, and sold under his own

* Opp. p. 627. 768.
† Œconom. and Med. Observ. p. 278.
‡ Mat. Med. Vol. 1. p. 534.
§ Lib. III. Cap. iii. Obs. 8.
‖ Von der Wassersucht, &c.
¶ Animadversiones, &c.

name all over Europe, for the cure of dropsy, in which an extract of this root, obtained, in the first instance, by spirit, formed the chief ingredient; the others being preparations of myrrh and carduus benedictus. These pills were said to produce a copious evacuation both by stool and urine; and by this combined effect to carry off the disease. They have however had their day, and are gone by, apparently with too little consideration upon the subject; for the experiments of Daignau and De Horne, and especially the successful trials in the French Military Hospitals, as related by M. Richard *, to say nothing of Dr. Bacher himself, do not seem to have excited sufficient attention. In our own country, since the days of Dr. Mead, the black hellebore has been limited to the list of emmenagogues, and even in this view is rarely employed at present. Whether this plant prove purgative, as has been asserted, when applied to the body externally in the form of fomentations or cataplasms like the croton, I have never tried. Ferrara, employed as hydragogues, the black and white hellebore indiscriminately.

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The seneka or senega (polygala *Senega*, Linn.) was another medicine much in use about a century ago, and reputed to be of very great importance in dropsy, from its combined action upon the kidneys and intestines, and, indeed, all the excretories. It reached Europe from America, where it had been immemorially employed by the Senegal Indians, from whom it derives its specific name, as an antidote against the bite of the rattle-snake. The root of the plant is the part chiefly, if not entirely, trusted to, and this is given in powder, decoction, or infusion. M. Bouvart found it highly serviceable as a hydragogue, but observes that, notwithstanding this effect, it does not of itself carry off the induration or enlargement of infarcted viscera, and ought to be combined with other means. It was very generally employed by Dr., afterwards Sir Francis Milman, in the Middlesex Hospital, and has again

Senega.

* Recueil des Observations de Médicine des Hôpitaux Militaires, &c. Tom. II. 4to. Paris.

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many instances are related by Bartholet*, Quarin † and others, of the complete success of perspiration when spontaneously excited. Tissot tells us that it was by this means Count Ostermann was cured, a very copious sweat having suddenly burst forth from his feet, which continued for a long time without intermission.

Interesting case related by Baker.

In the Medical Transactions there is a very interesting case of an equal cure effected by the same means, in a letter from Mr. Mudge to Sir George Baker. The form of the disease was, indeed, an ascites, but it will be more convenient to notice it here, while discussing the treatment of dropsy generally than to reserve it for the place to which it more immediately belongs. The patient, a female of about forty years old, had laboured under the disease for twenty years: the abdomen was so extremely hard as well as enlarged, that it was doubtful whether the complaint were not a parabysma *complicatum*, or physcony of various abdominal organs, and tapping was not thought adviseable. She was extremely emaciated: had a quick, small pulse, and insatiable thirst; voided little urine, breathed with difficulty, and could not lie down in her bed for fear of suffocation. For an accidental rheumatism in her limbs she had four doses of Dover's powder prescribed for her, of two scruples in each dose, one dose of which she was to take every night. The first dose relieved the pain in her limbs, but did nothing more. An hour or two after taking the second dose on the ensuing night she began to void urine in large quantities, which she continued to do through the whole night, and as fast as she discharged the water her belly softened and sunk. The third dose completed the evacuation; and "thus," observes Mr. Mudge, "was this formidable ascites, which had subsisted near twenty years, by a fortunate accident carried off in eight and forty hours." The cure, too, was radical: for the constitution fully recovered itself, and the patient was restored to permanent health.

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* Apud Bonet. Polyalth. IV. 47. † Animadversiones, &c.

sea-salt; the latter in the proportion of from three to eight drachms of each daily, largely diluted with some common drink *.

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Another powerful source of evacuation that has often been had recourse to for the cure of dropsy, is EMETICS: and, though little in use in the present day, they have weighty testimonies in their favour among earlier physicians. Their mode of action has a resemblance to that of the drastic purgatives; for, by exciting the stomach to a greater degree of secretion, they excite the system generally; and, in fact, far more extensively and more powerfully than can be accomplished by mere purgatives, in some degree from the greater labour exerted in the act of vomiting, but chiefly from the closer sympathy which the stomach exercises over every other part of the system than the alvine canal, or, perhaps, any other organ, can pretend to. In cases of great debility, however, it must be obvious that such exertion would be too considerable, and would only add to the general weakness; and it is on this account chiefly that the practice has been of late years very much discontinued in our own country. It is in consequence of this extensive sympathy of the stomach with every part of the system that emetics have often proved peculiarly serviceable in various local dropsies, especially that of the scrotum when limited to the vaginal sheath, and that of the ovarium, when discovered in an early stage. And from this cause, in combination with powerful muscular pressure, they have often acted with prompt and peculiar efficacy on ascites or dropsy of the abdomen: while Withering, Percival, and many of the foreign journals † abound with cases of the cure of ascites by a spontaneous vomiting.

Emetics.

How far advisable.

DIAPHORETICS have also been resorted to as very actively promoting the evacuation of morbid fluids; and

Diaphoretics have occasionally succeeded.

* Medicinisches Wochenblatt, 1781. N. 40.

† Sammlung Medicinischen Wahrnemungen. B. VIII. p. 220.—N. Sammlung, &c. B. VIII. p. 114.—Schulz. Schwed. Abhandlungen, B. XXI. p. 102.

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in two pints of water till only one pint remained; and added two ounces of vinous spirit after the decoction was strained off. Half an ounce of this decoction constituted an ordinary dose, which was given early in the morning and repeated every hour from three to eight or nine doses, or till sickness or some other disagreeable sensation was induced. In the hands of Sir George Baker, even when used in the form recommended by Dr. Darwin, its success was, occasionally, very doubtful; while in some cases it was highly injurious without the slightest benefit whatever *. Even where it acts very powerfully as a diuretic, and carries off five or six quarts of water a day, it often excites such incessant nausea, sinking, giddiness, and dimness of sight, and such a retardation and intermission of the pulse, that the increased evacuation by no means compensates for the increased debility. And by a repetition it is often found to lose even its diuretic effects.

In the hands of Sir George Baker of doubtful efficacy and sometimes mischievous.

Generally injures more by its depressive power than assists by its diuretic, and often loses its diuretic virtue by repetition.

In the powder made into pills it seems to operate with an equal uncertainty. It has sometimes produced a radical cure without any superinduced mischief: but in other cases it has been almost or altogether inert. Sir George Baker gives an instance of this inertness both in the decoction and in pills. In a trial with the former the dose was six drachms every hour for five successive hours during two days, through the whole of which it had not the least efficacy, not even exciting nausea. In a trial with the latter, three pills, containing a grain of the powder in each, were given twice a day for several days in succession. They gave no relief whatever; nor produced any other effect than giddiness and dimness of sight.

In the form of pill.

It is not wonderful, therefore, that the fortune of foxglove should have been various: that at one time it should have been esteemed a powerful remedy, and at another time been rejected as a plant *totâ substantiâ venenosa*. Its roots have been tried as well as its leaves; and apparently with effects as variable but less active. It seems

Effect of its roots.

* Medical Transactions, Vol. III. Art. XVII.

to have been first introduced into the London Pharmacopœia in 1721—folia, flores, semen; was discarded in the ensuing edition of 1746, and has since been restored in its folia alone: having encountered a like alternation of favour and proscription in the Edinburgh College. It is greatly to be wished that some mode or management could be contrived, by which its power of promoting absorption might be exerted without the usual accompaniment of its depressive effects. When recommended so strenuously by such characters as Dr. Darwin, and more particularly Dr. Withering, from a large number of successful cases, it is a medicine which ought not lightly to be rejected from practice, and should rather stimulate our industry to a separation of its medicinal from its mischievous qualities. Upon the whole, the singular fact first noticed by Dr. Withering seems to be sufficiently established that in all its forms it is less injurious to weakly and delicate habits than to those of firmer and tenser fibres*.

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General result of its supposed powers.

Less injurious to delicate habits than tenser fibres.

The most useful of the diuretic class of medicines is the siliquose and alliaceous tribes; particularly the latter, comprising leeks, onions, garlic, and especially the squill. The last is always a valuable and important article, and Sydenham asserts that he has cured dropsies by this alone. It has the great advantage of acting generally on the secernent system, and consequently of stimulating the excretories of the alvine canal as well as those of the kidneys. It sometimes, indeed, proves a powerful purgative by itself; but is always an able associate with any of the cathartics just enumerated. It may be given in any form, though its disgusting taste points out that of pills as the least incommodious.

Siliquose and alliaceous plants.

Squill.

When intended to act by the kidneys alone, Dr. Cullen advises that it should be combined with a neutral salt; or, if a mercurial adjunct be preferred, with a solution of corrosive sublimate, which seems to urge its course to the kidneys quicker and more completely than any other pre-

* Essay on Digitalis, p. 189.

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paration of mercury *. It may, also, be observed that the dried squill answers better as a diuretic than the fresh; the latter, as being more acrimonious, usually stimulating the stomach into an increased excitement, which throws it off by stool or vomiting, too soon for it to enter into the circulating system.

Colchicum autumnale, or meadow saffron.

The colchicum *autumnale*, or meadow-saffron, ranks next, perhaps, in point of power as a diuretic, and is much entitled to attention. It is to the enterprising spirit of Dr. Stoerck that we are chiefly indebted for a knowledge of the virtues of this plant, whose experiments were made principally on his own person. The fresh roots, which is the part he preferred, are highly acrid and stimulating; a single grain wrapped in a crumb of bread and taken into the stomach, excites a burning heat and pain both in the stomach and bowels, strangury, tenesmus, thirst, and total loss of appetite. And even while cutting the roots, the acrid vapour that escapes, irritates the nostrils and fauces; and the substance held in the fingers, or applied to the tip of the tongue, so completely exhausts the sensorial power, that a numbness or torpitude is produced in either organ, and continues for a long time afterwards. According to Stoerck's experiments this acrimony is best corrected by infusion in vinegar; to which he afterwards added twice the quantity of honey†. In the form of an acetum, and of the strength he proposed, it is given as a preparation in the extant London Pharmacopœia, while most of the other colleges have preferred his oxymel. Stoerck used it under both forms, but, perhaps, the best preparation is the wine, as recommended by Sir Everard Home in cases of gout, depurated from all sediment, as already noticed under the latter disease. Stoerck began with a drachm of this twice a-day and gradually increased it to an ounce or upwards. Hautesierk asserts that it is less efficacious than the oxymel of squills‡.

* Mat. Med. Vol. II. Part. II. Ch. xxi.

† Libellus de Radice Colchico autumnali. Vindob. 1763. 8vo.

‡ Recueil. II.

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The other diuretics, in common use, are of less importance; though many of them may be found serviceable auxiliaries as they may easily enter into the dietetic regimen. These are the sal diureticus, or acetate of potash, which very slightly answers to its name, unless given in a quantity sufficient to act at the same time as an aperient; nitrous ether; juniper-berries, broom-leaves, and, which is far better, broom-ashes; or either of the fixed alkalies; and the green lettuce, lactuca virosa, strongly recommended by Dr. Colin of Vienna, but as far as it has been tried in this country far beyond its merits. Dr. Collin, however, asserts that out of twenty-four dropsical patients he cured by this medicine all but one.

To this class of remedies we have yet to add dandelion (Leontodon *Taraxacum*, Linn.) and tobacco. The former of these was at one time supposed to act so powerfully and specifically on the kidneys as to obtain the name of *lectiminga*; and is said by some writers to have effected a cure in ascites after every other medicine had failed. It is truly wonderful to see how very little of this virtue it retains in the present day, so as to be scarcely worthy of attention: while with respect to tobacco, notwithstanding the strenuous recommendation of Dr. Fowler, it is liable to many of the objections already started against fox-glove.

Gratiola officinalis, or hedge-hyssop.

The gratiola *officinalis* or hedge-hyssop, was once extensively employed, both in a recent state of its leaves and in their extract, and, like many other simples, it appears to have been injudiciously banished from the Materia Medica. In both forms it is a powerful diuretic, and often a sudorific; and in the quantity of half a drachm of the dry herb, or a drachm of infusion, whether in wine or water, it becomes an active emetic and purgative. It is said to have been peculiarly useful in dropsies consequent upon parabysma, or infarction of the abdominal viscera; and in such cases seems still entitled to our attention. As a strong bitter, it may, like the lactuca *virosa*, which is also a strong bitter, possess some degree of tonic power, in connexion with its diuretic tendency.

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The bitter, however, is of a disagreeable and nauseating kind, which it is not easy to correct.

External means of evacuating the fluid of cellular dropsy.

The EXTERNAL MEANS of evacuating the fluid of cellular dropsy are blisters, setons, or issues, punctures, and scarification. The last is as much less troublesome as it is usually most effectual. It is, however, commonly postponed to too late a period, under an idea that sloughing wounds may be produced by the operation, difficult of cure, and tending to gangrene. In blistering this has often happened, but in scarifying the fear is unfounded, while any degree of vital energy remains: and it should never be forgotten that the longer this simple operation is delayed, the more the danger, whatever it may be, is increased. I have never experienced the slightest inconvenience from the practice; and have rarely tried it without some advantage; seldom indeed without very great benefit. The wound should be limited to a small crucial incision, resembling the letter T on the outside of each knee, as the most dependent organ, a little below the joint. The cut thus shaped, and very slightly penetrating into the cellular membrane will not easily close, and consequently the discharge will continue without interruption. In a young lady about twelve years of age, whom the author lately attended, apparently labouring under an affection of the liver, but whose enormous bulk of body as well as of limbs prevented all accuracy of examination, a common jack-towel applied to each leg after the incision was made, was completely wetted through and obliged to be changed every three or four hours, for as many days. She was also purged with small and frequently repeated doses of elaterium: and the quantity of fluid hereby drawn off at the same time by the intestines is scarcely credible. The whole system was evacuated in about a week; and the entire figure re-acquired as much elegance of shape and elasticity, as before the attack. She was of a lively disposition and fond of dancing; in which exercise she engaged with as much energy and vivacity as ever. Nearly a twelvemonth afterwards the disease returned: but the same means were not successful.

Blisters, setons, and scarification.

The last most effectual, but commonly deferred to too late a period.

Mode of operating.

Illustration of the benefit of scarification.

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The breathing was now affected, and there was great palpitation of the heart; so frequent and distressing indeed as to render her incapable of sleeping for a moment unless in an upright position. The patient in a few weeks fell a victim to the disorder; and on examining the body, the liver and lungs were found perfectly sound: but the heart was enlarged to nearly double its natural size, and particularly on the right side.

Whether the symptom of great thirst should be indulged.

During the progress of hydropic accumulation there is great dryness of the tongue, and, as already observed, an almost intolerable thirst. And the question has often been agitated, whether under these circumstances the patient's strong desire to drink should be gratified. In a state of health it is well known, that whatever be the quantity of fluid thrown into the blood it remains there but a short time, and passes off by the kidneys, so that the balance is easily restored: and hence it is obvious that one of the most powerful, as well as one of the simplest diuretics in such a state, is a large portion of diluent drink. But dropsy is a state very far removed from that of health; and in many cases a state in which there is a peculiar irritability in the secernents of a particular cavity, or of the cellular membrane generally, which detracts the aqueous fluid of the blood from its other constituents and pours it forth into the cavity of the morbid organ. And hence it has been very generally concluded that the greater the quantity of fluid taken into the system, the greater will be the dropsical accumulation: and consequently that a rigid abstinence from drinking is of imperative necessity.

On what ground such indulgence has been refused.

But the refusal founded on false principles.

Sir Francis Milman, however, has very satisfactorily shown that if this discipline be rigidly enforced a much greater mischief will follow than by perhaps the utmost latitude of indulgence. For, in the first place, whatever solid food is given, unless a due proportion of diluent drink be allowed, it will remain in an hydropic patient, a hard, dry, and indigested mass in the stomach, and only add a second disease to a first. And next, without diluting fluids, the power of the most active diuretics will

Patient may be allowed to gratify his desire; and why.

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remain dormant; or rather they will irritate and excite pyrexy instead of taking their proper course to the kidneys. And, once more, as the thirst and general irritation and pyrectic symptoms increase, the surface of the body, harsh, heated, and arid, will imbibe a much larger quantity of fluid from the atmosphere than the patient is asking for his stomach; for it has been sufficiently proved, that, under the most resolute determination not to drink, a hundred pounds of fluid have in this manner been absorbed by the inhalants of the skin, and introduced into the system in a few days, and the patient has become bulkier to such an extent in spite of his abstinence.

The surface of the body under the irritation of thirst absorbs more moisture from the atmosphere than would serve to quench the thirst in dropsy.

Even in a state of health or where no dropsy exists we are in all probability perpetually absorbing moisture by the lymphatics of the skin. Professor Home found himself heavier in the morning than he was just before he went to bed in the preceding evening, though he had been perspiring all night, and had received nothing either by the mouth or in any other sensible way. "That the surface of the skin", says Mr. Cruikshank, "absorbs fluids that come in contact with it, I have not the least doubt. A patient of mine, with a stricture in the esophagus, received nothing either solid or liquid into the stomach for two months: he was exceedingly thirsty, and complained of making no water. I ordered him the warm-bath for an hour morning and evening, for a month: his thirst vanished, and he made water in the same manner as when he used to drink by the mouth, and when the fluid descended readily into the stomach." *

Moisture absorbed from the air by the lymphatics of the skin in a state of health.

Under these circumstances, therefore, our first object should be to determine by measurement whether the quantity of fluid discharged by the bladder holds a fair balance with that which is received by the mouth: and if we find this to be a fact, and so long as it continues to be a fact, we may fearlessly indulge the patient in drinking whatever diluents he may please, and to what-

Advantageous to know whether the quantity discharged by the kidneys balances what is taken by the mouth.

* Anat. of Absorb. Vessels, p. 108. 4to. 1790.

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ever extent. In some cases, indeed, water alone, when drunk in large abundance, has proved a most powerful diuretic, and has carried off the disease without any other assistance, of which a striking instance occurs in Panarolus*; and hence Pouteau† occasionally advised it in the place of all other aliment whatever: as does also Sir George Baker, in a valuable article upon this subject in the Medical Transactions‡, in which he forcibly illustrates the advantage of a free use of diluent drinks, by various cases transmitted to him, in which it operated a radical cure, not only without the assistance of any other remedy, but, in one or two instances, after every medicine that could be thought of had been tried to no purpose.

Disease has been cured by drinking water alone.

But the fluid discharged from the kidneys may not be equal, nor indeed bear any proportion to what is introduced by the mouth, and we may thus have a manifest proof that a considerable quantity of the latter is drained off into the morbid cavity. Still we must not entirely interdict the use of ordinary diluents, nor suffer the patient to be tormented with a continued and feverish thirst. If simple diluent drinks will not pass to the kidneys of themselves, it will then be our duty to combine them with some of the saline or acidulous diuretics we have already noticed, which have a peculiar tendency to this organ; and we shall generally find, that in this state of union they will accompany the diuretic ingredients, and take the desired course. Of these, one of the most effectual, as well as the most pleasant, is creme of tartar; and hence this ought to form a part of the ordinary beverage in all extensive dropsies, and especially the cellular and abdominal. Any of the vegetable acids however may be employed for the same purpose: as may also rennet-whey, and butter-milk, and the more acid their taste the better will they answer their end. A decoction of sorrel-leaves makes also a pleasant diet

Hence fluids may be swallowed even when the kidneys do not discharge as much as is drunk.

In this case the common diet-drink should be combined with saline or acidulous diuretics.

Creme of tartar.

Decoction of sorrel leaves.

* Pentec. II. Obs. 24.

† Oeuvres Posthumes I.

‡ Vol. II. Art. XVII.

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drink for an hydropic patient; as does likewise an aqueous infusion of sage leaves with lemon-juice: both sweetened to the taste. Small stale table-beer, and weak cyder, or cyder intermixed with water, may in like manner be allowed, with little regard to measure. And it was by the one or other of these that most of the cures just referred to, as related by Sir George Baker, were effected. In one instance the cyder was new, yet it proved equally salutary under the heaviest prognostics. The patient was in his fiftieth year; his legs and thighs had increased to such a magnitude that the cuticle cracked in various places; he was extremely emaciated, and so enfeebled as not to be able to quit his bed, or return to it without assistance. His thirst was extreme, his desire for new cyder inextinguishable, and his case being regarded as desperate it was allowed him mixed with water. He drank it most greedily, seldom in a less quantity than five or six quarts a-day; and by this indulgence discharged sixteen or eighteen quarts of urine every twenty-fours till the water was totally drained off; and he obtained a radical cure without any other means whatever. Even ardent spirits, if largely diluted, and joined with a portion of vegetable acid, have been found to stimulate the kidneys; and in the opinion of Dr. Cullen may make a part of the ordinary drink*. And it is chiefly owing to the tendency which the neutral salts have to the kidneys, as their proper emunctory, and, the sympathy which the secernents of these organs maintain with those of all others, that the cure of dropsy has sometimes been effected by large draughts of sea-water alone; though sometimes this has also acted upon the bowels, and produced the same salutary result, by exciting a very copious diarrhœa, of which a striking example is given by Zacutus Lusitanus†.

Sage-tea with lemon juice.

Small stale table-beer.

Cyder.

Ardent spirits diluted and with vegetable acids.

Sea-water.

Tonic plan of medicine to combine:

It should never, however, be forgotten, that dropsy is a disease of debility, and that the plan of evacuating will rarely of itself effect a cure; and never, perhaps, except in recent cases, and where little inroad has been made

* Mat. Med. II. 549. † Prax. Hist. Lib. VIII. Obs. 53.

upon the constitution. In all other cases it should be regarded as a preparatory step alone; a mere palliative; and an evil in itself; though an evil of a less kind to surmount an evil of a greater. And it is for want of due attention to this fact, that the plan of evacuating, and particularly by drastic purgatives, has by many practitioners been carried to a dangerous and even a fatal extreme. Every purgative that does not diminish the general bulk, adds to the general disease by increasing the debility: and if upon a very few trials the plan be not found to answer this salutary purpose it cannot too soon be desisted from.

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since that of evacuating is only palliative and preparatory.

The radical cure must, after all, depend upon invigorating the constitution, or the organs particularly affected: for even a total removal of the water affords nothing more than a palliative and present relief.

Such an intention may often, indeed, be combined with that of evacuating the fluid; and hence Mondschein with great reason advises us to employ bitters with diuretics *, as Martius does with purgatives †.

Such a combination may take place from the first.

Bitters, indeed, where the debility does not depend upon visceral obstructions, form one of the most efficacious tonics we can employ. They are peculiarly adapted to that general loss of elasticity in the whole system and that laxity of the exhalants which constitutes the dydropic diathesis. "It has been alleged", says Dr. Cullen, "that bitters sometimes act as diuretics. And as the matter of them appears to be often carried to the kidneys, and to change the state of the urine, so it is possible that in some cases they may increase the secretion: but in many trials we have never found their operation in this way to be manifest, or at least to be any ways considerable. In one situation, however, it may have appeared to be so. When in dropsy bitters moderate that exhalation into the cavities which forms the disease, there must necessarily be a greater proportion of serum carried to the kidneys: and thereby bitters may, without

Bitters, their peculiar adaptation to cases of dropsy.

* Mondschein, p. 82.

† Martius, Obs. 54.

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increasing the action of the kidneys, seem to increase the secretion of urine."*

Balsamics and aromatics.

To bitters have been added the warmer balsamics and aromatics, and by many physicians the metallic oxydes; chiefly the different preparations of copper; though Willis, Boerhaave, Bonet, and Digby, have occasionally preferred those of silver. Iron has generally been abstained from as too heating, though recommended by Grieve†, Richard ‡, and Rhumelius §.

Metallic oxydes.

Mercury in visceral obstructions.

Where the disease is evidently dependent upon some visceral obstruction, mercury offers a fairer chance of success than any other metal; and in this case has often been pushed to salivation with the most salutary result. Du Verney employed it to this extent in an ascitic patient, whom at the same time he tapped; and by this double plan effected a cure; allowing a regimen of wine and stimulant meals during the process ||. And Rahn assures us that in one case the disease, though it several times recurred, was in every instance put to flight by a ptyalism excited by mercurial inunction ¶. But where the system is in a state of great general debility, such a solution of the fluids will only add to the weakness and increase the disease. Small doses of calomel steadily persisted in will be here our safest course, with a nutritious and generous diet of flesh-meat two or even three times a day; shell-fish; eggs; spice, and the acrid vegetables, as celery, water-cresses, raw red cabbage shred fine and eaten as sallad.

How far ptyalism may be allowed.

Venesection in what cases useful.

We have however observed that dropsy occasionally ensues from an undue excitement of the absorbents, and is even accompanied with inflammatory action. And in this case a free use of the lancet should precede every other remedial method; and will sometimes, as when the stimulus is a retardation of blood in the veins and a consequent accumulation in the arteries, effect a cure of its own accord. It should be, nevertheless, remarked that

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* Mat. Med. II. p. 58.
† Med. Com. Edinb. IX. II. 75.
‡ Journ. de Med. XXIX. 140.
§ Medic. Spagyr. tripart. p. 168.
|| Mem. de Paris, 1703, p. 174.
¶ Medic. Briefwechsel, B. I. 365.

dropsies of this form are rather a symptom of some other misaffection than an original or idiopathic disease.

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We have thus far contemplated dropsy as an idiopathic disease, dependent chiefly on constitutional debility: but there are cases in which it occurs as a transfer of morbid action in some other organ of the system than the cellular membrane, or whatever other part may be the seat of the hydropic affection; and in such cases it is often salutary, and answers the purpose of a counter-irritation, and especially in fevers and inflammatory attacks. "I have," says Dr. Parry, "so often known constitutional maladies suspended, and life evidently lengthenend and rendered more comfortable, by the coming on of various dropsical effusions; and, on the contrary, so many persons suffer aggravations of disease or even death, very shortly after the spontaneous disappearance of dropsy, that I cannot avoid considering that effusion as a salutary process rather than as an actual disease." *

Cellular dropsy found useful sometimes as a transfer of morbid action.

I have dwelt the longer on this species because the general observations which it suggests, as well in respect to its causes and history as to its mode of treatment, apply in a very considerable degree to all the rest; concerning which we shall now have little more to do than to enumerate them and point out their distinctive characters.

These remarks applicable to most of the ensuing species, and to be borne in mind.

SPECIES II.

HYDROPS CAPITIS.

Dropsy of the Head. Water in the Head.

EDEMATOUS INTUMESCENCE OF THE HEAD: THE SUTURES OF THE SKULL GAPING.

Gen. I. Spec. II. Disease often confounded with

This disease has been strangely confounded by nosologists and practical writers with that inflammation of the

* Elements of Pathology, &c. Vol. II. 8vo. 1815.

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brain which apparently commences in its substance or lower part, and, producing effusion into the ventricles, distends them, and thus unites the symptoms of fever and great irritability with those of heaviness, and at length of stupor. The accumulation of fluid is here only an effect, and follows upon inflammation of the brain as in any other part, and is only to be removed by removing the inflammation. It is ordinarily denominated, however, acute or internal hydrocephalus; but Dr. Cullen has correctly distinguished it from proper hydrocephalus or dropsy of the head by placing it in a different part of his classification, and assigning it a different name. In his view it is an apoplexy, and he has hence called it apoplexia *hydrocephalica*. In the present work it occurs under the name of CEPHALITIS *profunda*, and in treating of it as a cephalitis the author has submitted his reasons for not regarding it as an apoplectic affection.

meningic inflammation of the brain; or that called acute or internal hydrocephalus.

The two diseases duly discriminated by Cullen: but the latter improperly called by him an apoplexy.

Dropsy of the head chiefly common to children: but sometimes found in adult age.

The disease before us is common to children. A few singular cases are, indeed, recorded of its commencing in adult age *, and producing an enlargement of the scull by a morbid separation of the sutures, but these are very rare. That it does, however, occur without such separation and enlargement, and that too occasionally in every period of life, has been proved by a multitude of examinations after death, that have shown the ventricles of the brain distended with fluid, and producing a considerable pressure upon the brain. Yet where no such enlargement of the skull takes place, we may sometimes strongly suspect the disease from the symptoms, but cannot during the life of a patient speak with certainty upon the subject.

Like other dropsies, a disease of debility: but the causes of the local weakness rarely capable of being traced.

Dropsy of the head, like that of every other organ, is a disease of debility, and, as we have already observed in the introductory remarks to the present genus, may proceed from a relaxed condition of the secernents of the brain, a torpitude of its absorbents, or from both. The causes of this morbid state we are rarely able to ascertain: yet in some families there seems to be a peculiar predis-

* Hildan. Cent. III. Obs. 17. 19.

position to it; since it occurs in many of the children born in succession: and it may sometimes be connected with a scrophulous diathesis.

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The immediate seat of the dropsy varies considerably: for sometimes the fluid accumulates between the bones of the cranium and the dura mater; sometimes between the dura mater or the other membranes and the brain, and sometimes in the ventricles or convolutions of the organ. With the deficiency of tone there is also not unfrequently some deficiency of structure or substance: and it is in consequence of this that the fluid, when morbidly secreted or collected in one part, spreads without resistance to another. A deficiency of structure or substance is sometimes found in the brain itself and sometimes in the cranium. If it occur in the former a path may be immediately opened for the morbid fluid, accumulated in the ventricles or in any other interior part, to reach the membranes and distend the skull: and if in the latter, it may even pass beyond the skull, and separate and distend the integuments. I have seen instances of large perforations produced in different parts of the bones by a morbid absorption of the bony earth, as though the trephine had been repeatedly applied, and this too in adult age: and in some instances there has been a total absence of the calvaria *. Generally speaking, there is some deficiency of bony earth, as though it were impossible for this secretion to keep pace with the enlargement of the cranium: and hence the bones of the cranium have occasionally been so thin as to be pellucid and transmit the light of a candle, of which Van Swieten gives an instance †, from Betbeder ‡; or have had their place supplied by a membrane covering the entire range of the sinciput, an example of which will be found in Vesalius §.

Seat of the dropsy varies considerably:

Illustrated.

Often connected with a deficiency of structure or substance in the brain or the bones of the cranium.

The dropsical fluid is also said by many writers of high authority to originate in some cases between the integu-

Dropsical fluid said to originate sometimes between the integuments and the bone,

* Act. Helvet. t. 1. † Comment. in Hydrop. Sect. 1217.
‡ Histoire de l'Hydrocephale de Begle, p. 35.
§ De Corp. human. fabricâ. Lib. t. cap. 5.

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ments and the bone, and to be confined to this quarter; and hence, the disease has been divided into external and internal dropsy of the head. It is possible, indeed, as Van Swieten has justly observed, that since water may be collected in the cellular membrane of the whole body, such an accumulation may take place in the integuments of the head *. But the pretended cases are so rare that Van Swieten himself, Petit †, and many other writers of high credit, have doubted whether such a form of the disease has ever actually occurred. Yet, should it occasionally take place, there can, I think, be no question that it ought rather to be regarded as a variety of anasarca or cellular dropsy, than hydrocephalus or dropsy of the head properly so called. Celsus has been quoted upon the occasion as confirming the existence of this external modification, and applying to it the name of hydrocephalus: but this is to misunderstand him egregiously. In the passage referred to he is speaking of internal diseases of the head alone, of cephalæa, and other aches produced by wine, or indigestion, by cold, or heat, or the rays of the sun, sometimes accompanied with fever, and sometimes without; sometimes affecting the whole of its interior, and sometimes only a part:—"modò IN TOTO CAPITE, modò IN PARTE". And he then adds, "præter hæc etiamnum invenitur genus, quod potest longum esse: ubi humor cutem inflat, eaque intumescit, et, prementi digito, cedit: ὑδροκέφαλον Græci apellant." ‡ It is manifest, therefore, that the hydrocephalus here noticed, like the other diseases with which it is associated, is an internal affection of the head: and this idea is still farther confirmed by the treatment which he shortly afterwards proceeds to prescribe for it.

and to be confined to this quarter: whence external and internal dropsy of the head.

Such accumulation may take place but is very rare; and even then becomes rather a modification of cellular dropsy than proper dropsy of the head.

Whether Celsus alludes to such a modification.

It is hence highly probable that the cases which have been called external dropsies of the head, have consisted of internal accumulations spreading to and distending the

Hence what have been called external dropsies, most probably accumulations commencing within.

* Comment. loc. citat. 1718.

† Academ. des Sciences, Mem. p. 121.

‡ De Medicin. Lib. IV. cap. II.

integuments through channels that were not ascertained, and on this account not supposed, to exist.

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Were the distinctions of external and internal dropsy of the head necessary to be preserved, it would be far more accurate to limit the former to those modes of the complaint in which the water is confined between the calvaria and the membranes, and the latter to those in which it originates in the cavities of the brain: but as we can rarely, if ever, determine the limits of the collection by the symptoms, it is a distinction which cannot be supported, and would often lead us into error.

A proper distinction might be drawn if necessary, and of advantage: but can never be definite or of real use.

The form of the disease, however, which occurs between the calvaria and the dura mater is by no means common, and hence seldom likely to lead us astray. So little common, indeed is it, that Dr. Golius, who probably had more practice in this complaint than any other physician of ancient or modern times, expressly declares that "he never met with an example of it, and that he knows there are many physicians of extensive practice who have seen as little of it as himself." *

Rarely occurs between the calvaria and the bones.

Hydrops capitis frequently commences in the fetus, and sometimes renders the head so large as to retard the labour, and greatly harass the delivery. Blanchard gives a case in which four pounds of water were evacuated from the head of a fetus after its birth. At other times it does not show itself till some months, or even two or three years, after birth. In most cases the whole head enlarges gradually by a gradual separation of the sutures; but in a few cases the first symptom has been a small, elastic tumour on the upper part of the head, produced by an inequality of the dura mater, and its yielding more readily at the part that presents, than in any other quarter. This tumour sometimes grows to a size as large as the head itself. It is seldom, however, that the walls of the tumour burst; for the uniform pressure to which they are

Dropsy of the head often found in the fetus.

Illustrated.

* Drs. L. A. Golis, ausübender Arztes und Directors des Institutes für Kranke Kinder der Armen in Wien Praktische. Abhandlungen über vorzüglicheren Krankheiten, &c. Band. I. Wien. 1815.

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exposed, has a tendency to thicken and harden them. And hence, as the resistance increases, the sutures give way generally, and the tumour frequently disappears and is lost in the general swell.

If the local debility be confined to the excernent vessels of the brain, and the secretion be slow, the disease may proceed without much interference with the mental or corporeal powers: and has hence lasted upwards of thirty years.

The brain often exhibits, as we have already observed, some misformation or defect, which of itself may constitute a remote cause: but the proximate cause is a debility of the local secernents, absorbents, or both. If the debility be confined to these, or the defect in structure do not interfere with the proper developement of the mental or corporeal powers of the sensorium, the infant may live and even thrive in every other part, while the water continues to accumulate and the head to become more monstrous, and even insupportable from its own weight: for, provided the pressure applied be very gradual, and unaccompanied with inflammation, the brain, like the stomach and intestines in dropsy of the belly, may be drowned in water for even twenty or thirty years without serious mischief*. Michaelis relates the case of a patient twenty-nine years old, whose appetite and memory were good, and the pupils of the eyes natural, though the disease had continued from birth †. And in treating of vascular osthexy I had occasion to notice, from Dr. Heberden, the history of a patient who, with about eight ounces of water in the ventricles of the brain, as appeared on opening him,—and which there was good reason for believing had existed there for many years,—and with scarcely an organ free from disease in his whole body, with the exception of the brain itself, which was found healthy in its substance, was enabled to attain the good old age of upwards of fourscore years with an apparently sound constitution, and free from all the usual infirmities of advancing years, saving the inconvenience of an habitual deafness.

Exemplified.

If the imbecility extend to other parts, or be combined with defect of structure

But the torpitude or imbecility of the excernent vessels may extend to the other parts of the brain, and to parts

* Coindet, Mémoire sur l'Hydrencephale, &c. Geneva, 1818.

† Medical Communications, Vol. I. Art. XXV.

that are immediately connected with the mental faculties; or the defects of structure that are so often combined with dropsy of the head may extend to the same: and in such cases the hearing, sight, or speech may be affected: there may be loss of memory or stupidity, vertigo, epilepsy, or convulsion-fits. The brain has sometimes been found in a spongy or fungous state*; or otherwise disorganized†: and sometimes tense and slender with nerves like mucus‡. The fluid, moreover, may accumulate with rapidity, instead of slowly, as soon as the exciting cause, whatever it may be, is in operation, and the suddenness of the pressure may impede the action of the sanguiferous vessels; and we shall then perceive symptoms of compression, as a heavy pain in the head, stupor, occasional vomiting, quick pulse, and other febrile concomitants, a perpetual flow of tears from the eyes, or of mucus from the nostrils. And hence it is that dropsy of the head is so frequently a symptom or a sequel of inflammation of the brain, and particularly of parenchymatic inflammation.

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or substance, the mental powers may suffer; or if the fluid collect rapidly, symptoms of compression may follow: and, consequently, inflammation.

In this disease as in apoplexy we not unfrequently also meet with that peculiar mollescence of the substance of the brain to which the French pathologists have given the name of ramollissement de cerveau: and which, when treating of apoplexy, we observed is far more frequently a result of debilitated than of inflammatory or entonic action. Sometimes the entire substance of the organ, as well of the white as of the grey portion, is found in this softened state: and in a few instances a very considerable portion of it is absorbed and carried off, the remaining part being nothing more than a pulpy mass or pouch. "When the cranium," says Dr. Baillie, "is very much enlarged in hydrocephalus, the brain is thinned by absorption into a pulpy bag, and the corpus callosum is burst, so that the water deposited in the ventricles comes in contact with the dura mater at the upper part of the cra-

Mollifaction or pulpiness of some part of the brain occasionally found.

* Conrad, Diss. de Hydrocephalo. Argent. 1778.

† Bonet, Sepulchr. Lib. I. Sect. XVI. Obs. 9.

‡ Büttner Beschreibung des innern Wasserkopfs, &c. Königs. 1773.

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nium. In this way an hydrocephalus originally internal becomes in part external." *

Singular efforts sometimes made by nature to obtain a cure, or render the disease compatible with life. Exemplified.

Yet even here we have, sometimes, striking and most singular proofs that the remedial power of nature is interfering either to obtain a cure, or to render the disease compatible with life, and with the general faculties of the sensorium. There is an interesting illustration of this remark in a case, related by Dr. Donald Monro, in the Medical Transactions. It is that of a child which at the age of a year and a half, was brought into St. George's Hospital with a head much enlarged from the disease before us. She was feverish and had a slight stupor. The complaint was peculiarly obstinate, and resisted the use of purges, blisters, issues, bandages, and other remedies. The enlargement proceeded and became chronic, though the fever and stupor gradually diminished and at length ceased; yet the head continued to enlarge and kept an equal proportion with the child's growth: so that when in her eighth year, it measured two feet four inches round, which is nearly a foot more than it ought to have done, and the forehead alone was half the entire length of the face, or four inches out of eight, which is double the proportion it ought to have held,—yet the child was at this time as lively and sensible as most children of her age, and had a strong and peculiarly retentive memory. It was long before she could walk, on account of the vast weight of head she had to carry, and the difficulty of preserving a balance; but at length she learned to walk also with tolerable ease†.

Additional illustration.

In the following case the efforts of the remedial power were less successful: but it is peculiarly worthy of notice, as much from the lateness of the age in which the disease commenced, and the sutures were separated, as from the natural struggle there seems to have been to obtain a triumph over it. It is related by Dr. Baillie, in another volume of the same valuable work. The patient was a

* Morb. Anat. Fascic. x. Pl. III. p. 213.

† Medical Transactions, Vol. II. p. 350.

boy, not less than seven years of age when he first became affected. The pupils, from an early stage, were considerably dilated and the pulse was somewhat irregular; he complained of pain towards the back of his head, and was often in a state of stupor. His understanding, however, was clear, and his sight very little impaired almost to the last. He had twice intervals of great promise, for a few weeks, with considerable abatement of all the symptoms, and an appearance of doing well. But in both instances he relapsed, and at the distance of ten months from the commencement, fell under daily attacks of convulsion-fits. It is remarkable that, though his intellect continued unimpaired, the frontal and parietal bones, from the force of the accumulated fluid in every direction, were separated from each other, to a distance of from half to three quarters of an inch, notwithstanding that they had been firmly united at their respective sutures before the commencement of the disease. Nearly a pint of water was found in the ventricles upon examination.

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We have observed, that in many cases the bones of the skull become peculiarly thin and pellucid, or are altogether deprived of their calcareous earth, and reduced to cartilages. But where the instinctive or remedial power of nature, which is always labouring to restore morbid parts to a state of health, or to enable them in their altered condition to fulfil their proper functions, has succeeded in rendering the diseased brain still capable of exercising some of its faculties, a supply of phosphate of lime, is also, in various instances, provided for the bony membrane; which not only re-assumes its ordinary firmness, but has sometimes exhibited a density far beyond the usual proportion and commensurate with the magnitude of the skull; while the cervical vertebræ have been equally strengthened for the purpose of bearing so enormous a load. Hildanus gives a case of this kind in a youth eighteen years old, who had laboured under a dropsy of the head from his third year. The skull was of an immense magnitude *(immensæ magnitudinis)* as well

Bones sometimes thickened instead of being rendered thinner: accounted for, and the advantage of this process.

Cervical vertebræ invigorated also in proportion.

Illustrated.

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as peculiarly hard and solid. The patient spoke distinctly, but his mind was not equal to his articulation, and he suffered greatly from violent epileptic attacks*. "If skulls of this kind," says the Baron Van Swieten, "should be disinhumed in their burial-ground by posterity, there would certainly not be wanting persons who would ascribe them to some gigantic family. If, indeed, the calvaria should be dug up entire the error may be corrected, by observing the size of the upper jaw-bones, which would be found of the ordinary proportion: but if the bones should be separated and single, there could be no appeal to this distinctive mark."†

Remark of Van Swieten upon this fact.

Prognostics.

The disease is always dangerous from the difficulty of determining its extent and what degree of cerebral disorganization may accompany it. Where, however, it is limited to a weak condition of the excerments of the brain it is often remediable and admits of a radical cure. But where, on the contrary, no favourable impression can be made on the organ, the general frame partakes by degrees of the debility, the vital powers flag, the limbs become emaciated, and death ensues at an uncertain period: or the patient survives, a miserable spectacle to the world and burden to himself; rarely reaching old age, but sometimes enduring life for twenty or even thirty years‡ before he is released from his sufferings. In a few instances it is observed by Dr. Coindet that coma, a dilated pupil, and other symptoms resembling acute hydrocephalus, as it has been called, or profound cephalitis, accompany the disease from its commencement§: but I believe the pulse will, in such instances, rarely be found to betray that irritable irregularity in the beat which has already been noticed in the cephalitic disease. On opening the head twelve or fifteen pints of fluid have often been evacuated; and occasionally not less than twenty-four or

Prodigious quantity of fluid sometimes found in the head.

* Observ. Chirurg. Cent. III. Obs. XIX. p. 199.
† Comment. Tom. IV. Sect. 1217. p. 123.
‡ Van. Swieten, Comment. loc. citat.
§ Mémoire sur l'Hydrencephale, &c. Geneva, 1818.

twenty-five pints*, which have the singular property of not jellying even on exposure to heat†.

Gen. I. Spec. II. Hydrops capitis. Dropsy of the head. Water in the head.

The water has sometimes been found lodged in a cyst, and in a few instances the cerebrum itself has formed a sack for containing it. Morgagni asserts that the disease is more common to girls than to boys‡. I do not know that the remark has been confirmed by any collateral authority.

Whether most common to boys or girls.

The cure, as in the preceding species, must be attempted by evacuating the water by internal or external means, and by giving tone to the debilitated organs.

Remedial process.

Drastic purges can rarely, in this form of the disease, be carried to such an extent as to be of essential service, on account of the early period of life in which it commonly shows itself. For the same reason diaphoretics have not been generally recommended, or often found serviceable when ventured upon. Diuretics have been more frequently had recourse to; and particularly the digitalis. Dr. Withering was favourable to its use, but it has commonly, as in other forms of dropsy, proved more injurious than beneficial.

Drastic purges little to be depended upon in this species.

Diaphoretics rarely of use.

Diuretics have been more generally employed.

The best internal medicine is calomel, in small doses, in union with some carminative for the purpose of keeping up the action of the stomach, a healthy state of which is of great importance. The calomel, however, should be employed rather as a stimulant or tonic, so as to excite the mouths of the torpid vessels to a return of healthy action, than as a purgative or with a view of producing salivation; except indeed, where symptoms of inflammation are present, in which case it cannot be given too freely, as already observed under parenchymatic cephalitis §. Where the disease has been unaccompanied with inflammatory symptoms, but nevertheless has been attended with a feverish irritation, and great heaviness, as

Best internal medicine, calomel in small doses.

* Bonet, Sepulchr. Lib. I. Sect. XVI. Obs. 1.—Eph. Nat. Cur. Dec. III. Ann. I. Obs. 10.

† Hewson on the Lymph. Syst. Part II. p. 193.

‡ De Sed. et Caus. Morb. Ep. XII. Art. 6.

§ Vol. II. p. 403.

Gen. I. Spec. II. Hydrops capitis. Dropsy of the head. Water in the head. Treatment. Exemplified.

well as considerable enlargement of the head, the author has found half a grain of calomel, given three times a-day, in the manner above proposed, and continued three times a day for a month, of essential service: and particularly in a case that occurred to him, many years ago, of a little boy who was four years old when the disease first appeared; which, however, had made its attack so insidiously as to escape the observation of the parents till the increased bulk of the head attracted their notice, which was soon afterwards succeeded by the symptoms just adverted to. The complaint had increased, the symptoms were more aggravated, and the skull, within six months, had become as large as that of an adult, when the mercurial process was commenced, accompanied with a free fomentation of the head with the solution of the acetate of ammonia, and an occasional use of purgatives. In ten days there was an evident improvement: the child was less languid, and feverish, and showed less desire to rest his head perpetually on a chair. The skull no longer augmented; the mental faculties which had begun to discover hebetude regained vigour, and the patient, now in his twentieth year, is an under-graduate in one of our universities, exhibiting a developement of talents that has already obtained for him various prizes, and gives a promise of considerable success hereafter. The bulk of his head is at this moment very little larger than it was at six years of age: a curious fact in pathology, though by no means uncommon: since where the disease forms space enough for a perfect growth of the brain, the calvaria ceases to expand, and the head becomes once more proportioned to the rest of the body.

Successful termination.

Head but a little larger at twenty years old than at six.

External means for diminishing the contained fluid.

The external means employed for diminishing the contained fluid have consisted in local stimulants, as different preparations of ammonia, blisters, and cauteries, and puncturing the integuments.

Local stimulants when serviceable.

All local stimulants have a chance of being useful where the disease is seated near the surface, or between the membranes and the cranium, for they tend to excite the absorbents to an increased degree of tone and action,

and consequently to a diminution of the general mass. But they do not seem to have much effect when the fluid issues from the convolutions or ventricles of the brain. Blistering the whole of the sinciput has unquestionably been found serviceable, and is perhaps the most effectual external stimulant we can employ.

GEN. I. SPEC. II. Hydrops capitis Dropsy of the head. Water in the head. Treatment.

The water has also been evacuated in many instances, with full success by a lancet: and, where the sutures gape very wide, and the integuments are considerably distended, this remedy ought always to be tried. The brain, however, like every other organ, when it has been long accustomed to the stimulus of pressure, cannot suddenly lose such a stimulus without a total loss of energy; and hence, as it is necessary in many cases of dropsy of the belly to stop as soon as we have drawn off a certain portion of water in order to avoid faintness, it is found equally necessary to evacuate the water from the brain with caution and by separate stages; for where the whole has been discharged at once, the sensorial exhaustion has been so complete as to produce deliquium and sudden death. Hence six or eight ounces are as much as it may be prudent to let loose at a time in an infant of three or four years of age; when the orifice should be covered with a piece of adhesive plaster, and an interval of a day or two be allowed. The operation, indeed, is very far from succeeding in every instance: for in some cases there is so much internal disease or even disorganization, that success is not to be obtained by any means. And next, a fresh tide of water will not unfrequently accumulate, and the head become as much distended as before. Still however, the attempt should be made, and even repeated and repeated again if a fresh flow of fluid should demand it: for the disease has occasionally been found to yield to a second or third evacuation, where it has triumphed over the first.

Evacuation of the water by the lancet: when to be tried: water to be evacuated gradually, and why.

Operation does not always succeed: and why.

Perforation should be repeated if necessary several times in succession.

Dr. Vose of Liverpool, has published an instructive case of this kind in the ninth volume of the Medico-Chirurgical Transactions. The patient was seven months old, and the head between two and three times its natural

Advantages of this plan exemplified from Vose.

GEN. I. SPEC. II. Hydrops capitis. Dropsy of the head. Water in the head. Treatment.

size when the operation was first performed. On this occasion a couching needle was made use of, and the orifice was closed when three ounces and five drachms of fluid were evacuated: about an equal quantity was conjectured to dribble from the orifice after the operation: at which time the infant became extremely faint, and the integuments of the head had shrivelled into the shape of a pendulous bag. He revived, however, with the aid of a little cordial medicine; and, the water accumulating afresh, a second operation was performed by a bistoury about six weeks after, when eight ounces of fluid were drawn off with little constitutional disturbance; which was succeeded only nine days later by a third operation, that yielded, by the introduction of a groved director, twelve ounces, without any interference with the general health whatever. A copious and vicarious discharge of serum from the rectum took place shortly after this third puncture of the integuments, which was succeeded by some degree of deliquium; but from this, also, the patient soon recovered; the head gradually diminished in size, and a complete cure was at length effected.

Compression recommended through the whole course of the disease, but generally mischievous.

Yet may be of great use after evacuating the water.

Formey *, Pitschel †, and several other writers, have recommended compression, with a view of stimulating the torpid mouths of the absorbents to a resumption of their proper action. But no compression can be made on these, whatever they may consist in (for absorbents have not hitherto been detected in the brain), without compressing at the same time parts that are injured by pressure already. Advantage, however, may be taken of the recommendation after the brain has been evacuated; and a proper compress about the shrivelled head may be of as much use in preventing deliquium, and perhaps, by its excitement, in stimulating the torpid vessels to a return of their proper function, as it is well known to be of when applied around the abdomen after the use of the trocar.

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* Ad. Rivierii, Observ. Medic. Cent. v.

† Anat. and Chir. Anmeak. Dresd. 1784.

SPECIES III.

HYDROPS SPINÆ.

Dropsy of the Spine.

SOFT FLUCTUATING EXTUBERANCE ON THE SPINE; GAPING VERTEBRÆ.

Gen. I. Spec. III. Spina bifida of authors, why so called.

THIS is the spina *bifida* of authors, so called from the double channel which is often produced by it through a considerable length of the vertebral column: a natural channel for the spinal marrow, and a morbid channel running in a parallel line, and equally descending from the brain, and filled with the fluid which constitutes the disease.

Nature of the disease explained.

It is sometimes local, but in most instances is connected with a morbid state of the brain, and directly communicates with it. In this last form it may be regarded as a compound dropsy of this organ, the accumulating water working its way down towards the foramen ovale in consequence of its dependent position, or a deficiency in the substance of the brain in this quarter, instead of up towards the fontanel. In both cases the surrounding dura mater gives way, and, in the last, forms a sinus, which, as it descends, winds itself through any accidental opening that may exist in or between the bones of the vertebræ, and distends the superincumbent integuments into the same kind of tumour we have already noticed as sometimes existing on the crown of the head when the fluid is pressed in an upper direction.

Mostly congenital: but the tumour often does not show itself till several

Dropsy of the spine is mostly congenital, and consequently a disease of fetal life; in many instances, however, the tumour does not show itself till some weeks, or even months, after the birth of the child. The degree of danger, as justly observed by Dr. Ollivier*, must depend

* De la Moëlle Epiniere, et de ses Maladies, &c. 8vo. Paris. 1824.

GEN. I. SPEC. III. Hydrops spinæ. Dropsy of the spine.

upon the structural defect, or other mischief that exists in the brain or the substance of the spinal marrow. It has sometimes appeared as a local affection in adult age, and has admitted of a cure; but, from its usually occurring in the earliest and feeblest stage of life, and often before the sensorium is fully developed, so as, indeed, to prevent its developement in a perfect form, it is rarely remediable. We observed in the last species that the bones of the cranium are often found imperfect; and it is hence not to be wondered at that the bones of the vertebræ should exhibit a like imperfection in the present, and allow a protrusion externally. Fieliz gives a case in which the whole of the spinous processes were deficient, and the dropsy extended through the entire length of the spine*.

months after birth. Sometimes a local affection and admits of cure: but generally connected with some serious mischief in the brain, and hence rarely remediable.

The whole of the spinous processes have been found deficient.

The integuments are here thinner and more disposed to burst than in the head, and hence, if the tumour be left to its natural course, it commonly continues to enlarge till it bursts; while, if it be opened, the child, in most cases, dies from exhaustion and deliquium, as in dropsy of the head, provided the water be evacuated entirely; and if it be discharged gradually, an inflammation of the spinal marrow is apt to ensue, which proves as fatal. Hence there is much reason in the advice of Mr. Warner merely to support the tumour, but not to touch it otherwise, and, in the mean while, to see how far we can give the remedial power of nature an opportunity of exerting itself by invigorating the frame generally. Something, however, beyond support may be safely ventured upon, for a gentle compression, answering the purpose of a truss, and giving the support of artificial vertebræ, may be tried with propriety, and, if found to do no mischief, it should be gradually increased. Sir Astley Cooper has also recommended a much bolder practice; that of endeavouring to procure an adhesion of the sides of the sac, so as to close the opening from the spine and to put a radical stop to the disease. There is here, how-

Ordinary termination when the disease is left to itself.

How far compression may be useful.

Artificial adhesion of the sides of the sac.

* In Richter, Chir. Bibl. Band. IX. p. 185.

ever, much danger from constitutional irritation, yet this eminent and judicious surgeon is well known to have succeeded in one instance. If the disease extend to the ventricles it will probably be of little use, but if it be local, it may ultimately prove successful.

Hydrops spinæ. Dropsy of the spine.

This form of dropsy is mostly fatal; but there are a few cases on record of a successful termination upon the employment of different methods. Thus, Heister, who in his day also recommended compression, gives an example of its having radically yielded to this plan, in union with spirituous liniments*; and Fantoni†, and Heilmann‡, describe, each of them, an instance of a perfect cure upon opening and evacuating the cavity. In all which instances, however, it seems probable that there was no such communication with the brain, or that the brain, or spinal marrow, was less affected than they ordinarily appear to be.

Has sometimes terminated favourably under different methods.

A few singular cases have occurred of young persons protracting a miserable existence under this disease to the age of adolescence. Martini mentions a youth who lived till eleven years old; and Acrel notices others who survived till seventeen §, but with paralytic sphincters of the anus and bladder: and Cowper speaks of one who attained the age of thirty.

Life has been protracted during the disease to adolescence.

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* Wahrnehmung. B. II.

† In Pacchioni Animadvers. cit. Morgagni De Sed. et Caus.

‡ Prodrom. Act. Havn. p. 136.

§ Schwed. Abhandl. B. x. p. 291, seq.

SPECIES IV.

HYDROPS THORACIS.

Dropsy of the Chest.

SENSE OF OPPRESSION IN THE CHEST; DYSPNŒA ON EXERCISE, OR DECUMBITURE; LIVID COUNTENANCE; URINE RED AND SPARE; PULSE IRREGULAR; EDEMATOUS EXTREMITIES; PALPITATION, AND STARTINGS DURING SLEEP.

GEN. I. SPEC. IV. Hydrothorax of authors.

THIS is the hydrothorax of authors; and the secreted fluid, in direct opposition to that of hydrocephalus, commonly, perhaps always, jellies upon exposure to heat.

Subdivisions of Sauvages. Hydrops mediastini, H. pleuræ, H. pericardii, H. pulmonalis.

Sauvages, who has made this disease a genus, gives a considerable number of species under it, derived from the particular part or cavity of the thorax which is occupied, or the peculiar nature of the effusion; as hydrops mediastini, pleuræ, pericardii, hydatidosus; to which he might have added pulmonalis, as the water is, perhaps, sometimes effused into the cellular texture of the lungs. But as these can never, with any degree of certainty, be distinguished from each other till after death, and as such distinction could make no essential difference in the mode of treatment, it is unnecessary to notice them, and is scarcely consistent with an arrangement founded upon symptoms alone. Those who are desirous of examining into the curious, and often contradictory signs by which these several forms of pectoral dropsy have been attempted to be discriminated by various writers, may turn with advantage to Sir L. Maclean's work upon the subject, where he will find them selected with much patient study, and accompanied with many judicious remarks*. In the present

No critical signs to discriminate them from each other.

Supposed distinctive symptoms well noticed by Maclean.

* Inquiry into the Nature, Causes, and Cure of Hydrothorax, p. 52—70. 8vo. 1810.

place it may be sufficient to observe that the disease is, in fact, sometimes limited to any one of those parts, and sometimes extends to several of them: and that when it occurs as a consequence of cellular dropsy, it is in a greater or less degree common to the whole. Even the distinction of Avenbrugger into dropsy of one side, and dropsy of both sides of the chest, is of little practical importance. "It is", observes M. Corvisart in his comment on the *Inventum novum*, "a mere difference of quantity"; and would, in his opinion, be better expressed by the terms partial and complete.

GEN. I. SPEC. IV. Hydrops thoracis. Dropsy of the chest. Distinction of Avenbrugger; discountenanced by Corvisart.

The complaint originates with little or no observation and continues its course imperceptibly; there is at length found to be some difficulty of breathing, particularly on exertion or motion of any kind, or when the body is in a recumbent position, usually accompanied with a dry and troublesome cough, and an edema of the ancles towards the evening. Then follow, in quick succession, the symptoms enumerated in the definition, several of which I have drawn directly from my friend Sir L. Maclean's very accurate arrangement of them. The difficulty of breathing becomes, at length, peculiarly distressing, and the patient can obtain no rest but in an erect posture; while even in this condition he often starts suddenly in his sleep, calls vehemently for the windows to be opened, and feels in danger of suffocation. His eyes stare about in great anxiety, the livid hue of his cheeks is intermixed with a deadly paleness, his pulse is weak and irregular, and as soon as the constrictive spasm of the chest is over, he relapses into a state of drowsiness and insensibility. The disease is often connected with some organic derangement of the heart; and M. Corvisart conceives that several of the above symptoms only belong to it when such a connexion exists, and the dropsy is merely symptomatic. He objects even to the signs of starting in sleep, anxiety of the præcordia, inability to lie down and irregular pulse:— which he affirms indicate alone an anterior organic disease of the heart or large vessels. They are, nevertheless, symptoms which have so strikingly occurred to myself in

Commencement of the disease.

Progress.

Often connected with organic derangement of the heart

How far some of the above symptoms may be influenced by this fact.

GEN. I. SPEC. IV. Hydrops thoracis.

cases of idiopathic dropsy of the chest, as well as to great numbers of the first authorities in pathology, that I cannot concur with M. Corvisart in expunging them from the list of ordinary signs. I agree with him, however, in the remark that if the effusion be confined to one side, the side thus surcharged becomes more rounded, and the intercostal spaces augment in size as the water accumulates; while the edema of the extremities is confined to the same side.

Dropsy of the chest. Distinctive signs of the limitation of the disease to one side.

Use of percussion and mediate auscultation.

Percussion, and the use of the stethoscope are here of considerable importance in the earlier stages of the disease, though of little or none afterwards. A slight degree of percussion, with the hand applied to one or both sides, as the case may be, will develope a slight fluctuation as well as a sound more obscure than belongs to a state of health; and the stethoscope will manifest the latter sign still more distinctly. But when the cavity of the pleura is filled, or nearly so, whether on one side or on both, no sound whatever will be returned, nor fluctuation felt; and hence, though it will be obvious that the patient is labouring under some severe disease of the chest, we must have recourse to other diagnostics than these to ascertain its precise nature. For a brief description of the comparative value and mode of employing the two methods of percussion and mediate auscultation, the reader is referred to the treatment of PHTHISIS in the third volume of this work*.

In what stage doubtful.

Termination.

The disease, contrary to the preceding species is mostly to be found in advanced life, and its duration chiefly depends upon the strength and habit of the patient at the time of its incursion. It is hence, in some cases, of long continuance, while in others the patient is suddenly cut off, during one of the violent spasms, which at length attack him as well awake as in the midst of sleep.

Causes general and particular.

The causes are those of dropsy in general, upon which we have already enlarged, acting more immediately upon the organs of the chest, and inducing some organic affection of the heart, lungs, or the larger arteries. We also frequently find, upon dissection, that the disease has

* Cl. III. Ord. IV. Gen. III. Spec. V.

Gen. I. Spec. IV. Hydrops thoracis. Dropsy of the chest. Hydrops hydatidosus of Sauvages.

been produced, or considerably augmented by a number of hydatids (tænia *Hydatis*, Linn.) some of which appear to be floating loosely in the effused fluid, and others to adhere to particular parts of the internal surface of the pleura, constituting the hydrothorax *hydatidosus* of Sauvages. They consist of spherical vesicles containing a watery fluid, whose circular membrane is possessed of a living power and a peculiar organization that enables them to attach themselves to the internal surface of a cavity, and to suck up the more attenuate and limpid humours from the neighbouring parts.

The only decisive sign, a fluctuation of water.

The only decisive symptom in this disease is the fluctuation of water in the chest, whenever it can be ascertained; for several of the other signs are often wanting, or, in a separate state, are to be found in other complaints of the chest as well as in dropsy, more particularly in asthma and empyema. And hence, in determining the presence of this disorder, we are to look for them conjointly, and not to depend upon any one when alone. Even when associated, we are sometimes in obscurity: and the difficulty of indicating the disease by any set of symptoms has been sufficiently pointed out by De Haen*; while Lentin†, Stoerck‡ and Rufus§ have given instances of its existence without any symptoms whatever: and Morgagni with few or none‖. Bonet observes that dyspnœa¶ is not an indication common to all cases**, and Morgagni, that startings during sleep, or on waking, do not always accompany the disease, and may certainly exist without it. Hoffmann and Baglivi have given, as an additional symptom, intumescence and torpitude of the left hand and arm; but even this affection, or the more ordinary one of laborious respiration, has existed without water in the chest. De Rueff relates a singular case in a man who was attacked with most of the sym-

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* Rat. Med. P. v. p. 97.
† In Blumenbach Biblioth. III.
‡ Ann. Med. II. p. 266.
§ Ad River. Observ. Med.
‖ De Sed. et Caus. Morb. Ep. XVI. Art. 2. 4. 6. 8. 11.
¶ Ep. cit. Art. 28. 30.
** Sepulchr. Lib. II. Sect. 1. Obs. 72. 84.

GEN. I. SPEC. IV. Hydrops thoracis. Dropsy of the chest.

ptoms jointly, at the age of about sixty, and was supposed to be in the last stage of this disease. He recovered by an ordinary course of medicine, and died at the age of eighty with his chest perfectly sound to the last*.

Medical treatment. General principles already laid down. Elaterium. Squill peculiarly valuable. Fox-glove of doubtful efficacy.

The general principles to be attended to in the mode of treatment, are the same as have already been laid down under HYDROPS *cellularis:* for, as already observed, the causes are similar, and only varied by an accidental deposition of the morbid fluid in the chest, in consequence of a peculiar debility in the thoracic viscera, or of some organic misaffection; and hence, Dr. Ferriar employed elaterium, equally in both affections, and in the present disease with a degree of success that chiefly brought it once more into popular use. The squill is here a more valuable medicine than in most other species; as, independently of its diuretic virtue, it affords great relief to the dry and teasing cough, and in some degree, perhaps, to the pressure of the fluid itself, by exciting the excretories of the lungs to an increased discharge of mucus. Digitalis, as in other species of the same genus, is a doubtful remedy; its diuretic effects are considerable, but, however cautiously administered, it too often sinks the pulse, and diminishes the vital energy generally; and is particularly distressing from its producing nausea, and endangering deliquium; results which ought more especially to be guarded against in dropsy of the chest, as it is, in most cases, not merely a disease of debility but of enfeebled age. Sir L. Maclean is a firm friend to its use in almost every case: but even he is obliged to admit that the state of the pulse, the stomach, the bowels, and the sensorial function, should be attentively observed by every one who prescribes it. And under the following provision, which he immediately lays down, there can be no difficulty in consenting to employ it. "If these be carefully watched, and *the medicine withdrawn as soon as any of them are materially affected,* I hesitate not to affirm that no serious inconvenience will ever ensue from

Cautionary advice of Maclean during its use.

* Nov. Act. Acad. Nat. Cur. Tom. IV. 4to. Norimb.

it, and that it may be administered with as much safety as any of the more active medicines in daily use."*

Blisters are, in many cases, of considerable avail; they act more directly, and therefore more rapidly and effectually than in most other modes of dropsy, and should be among the first remedies we have recourse to.

Venesection, in what cases serviceable.

The strong symptoms of congestion under which the heart seems, in some instances, to labour, have occasionally induced practitioners to try the effect of venesection: and there are cases in which it has unquestionably been found serviceable: as that more especially related by Dr. Home, in which he employed it seven times in the course of eighteen days, and hereby produced a cure†. I am induced to think, however, that in this instance the dropsy was an effect of the obstruction under which the heart laboured, rather than that the obstruction was an effect of the dropsy. And in all instances of this kind no practice can be more prudent. But where the dropsy is primary and idiopathic, all such obstructions will be more safely and even more effectually relieved by a quick and drastic purge than by venesection.

Rarely to be employed in idiopathic affections.

Opium mostly injurious alone: but beneficial with squills or ipecacuan.

Opium is a medicine that seems peculiarly adapted to many of the symptoms; but by itself it succeeds very rarely, heating the skin and exciting stupor rather than refreshing sleep. When mixed, however, with the squill pill, or with small doses of ipecacuan, and, if the bowels be confined, with two or three grains of calomel, it often succeeds in charming the spasmodic struggle of the night, and obtaining for the patient a few hours of pleasant oblivion.

External revellents.

Besides blisters as external revellents, setons and caustics have sometimes been made use of, and especially in the arms or legs. Baglivi preferred the cautery and applied it to the latter‡; Zacutus Lusitanus to both, and employed it in connexion with diuretics and tonics§.

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* Inquiry into the Nature, &c. of Hydrothorax, p. 171.

† Clinical Experiments, p. 346. ‡ Opp. p. 103.

§ Prax. Admir. Lib. 2. Obs. 112.

GEN. I. SPEC. IV. Hydrops thoracis. Dropsy of the chest. Paracentesis: of early origin. How employed by Hippocrates.

Tapping is another external mean of evacuating the water. The practice is of ancient date, and is described by most of the Greek writers. To avoid the effect of a dangerous deliquium from a sudden removal of the pressure, Hippocrates allowed, in many instances, thirteen days before the fluid was entirely drawn off. And to prevent the inconvenience resulting from a collapse of the integuments, and the necessity of a fresh opening or the retention of a canula in the orifice through the whole of this period, he advised that a small perforation should be made in one of the ribs, and that the trocar should enter through this foramen*.

Objections to its use: mostly a mere palliative: uncertain of obtaining evacuation from various causes.

There are two very powerful objections, however, to the use of the trocar. The first is common to most dropsies, and consists in its offering, in most instances, nothing more than a palliative. The second is peculiar to the present species, and consists in the uncertainty of drawing off any water whatever, from the obscurity or complicated nature of the complaint, upon which we have touched already. If the fluid be lodged in the pericardium, the duplicature of the mediastinum, or the cellular texture of the lungs, it is obvious that the operation must be to no purpose. And yet, with the rare exception of a palpable fluctuation in the chest, we have no set of symptoms that will certainly discriminate these different forms of the disease. It must be also equally in vain if the fluid be confined in a cyst, as has occasionally proved a fact, unless the operator should have the good fortune to pierce the cyst by accident. And, in a few instances, again, the fluid, which has at all times a striking tendency to become inspissated, has been found so viscid as not to flow: of which Saviard has given us a striking example†.

Hence to be employed with caution.

A considerable pause is necessary, therefore, before tapping is decided upon: nor ought it ever to be employed till the ordinary internal means have been tried to no purpose. But where these have been tried and with-

* Περὶ Ἑλκῶν Παθῶν. Lib. LIII. p. 544.

† Recueil d'Observations Chirurgiques, &c. Paris, 1784.

Hydrops thoracis. Dropsy of the chest. And only after internal remedies have failed. Trochar where to be applied.

out avail; and more especially where we have reason to ascribe the disease to local debility or some local obstruction rather than to a general decline of the constitution; and more especially still, where we have the satisfaction of ascertaining a fluctuation, or of noticing, as has sometimes occurred, that the ribs bulge out on the affected side, the operation may be ventured upon, and will often be found serviceable. The ordinary place for introducing the instrument is between the fourth and fifth of the false ribs, about four fingers' breadth from the spine. Du Verney, however, recommends between the second and third of the false ribs: and, in different cases, there may be reason for even a greater latitude than this.

In a case in which all the precautionary steps just mentioned had preceded, and where a fluctuation was clear, Dr. Archer of Dublin drew off eleven pints at once by tapping, and the patient found instant relief, and was tolerably well for at least three years afterwards; but whether the complaint then returned we are not informed *.

More frequently used on the Continent: and hence more numerous cases of a successful issue. Quantity of fluid evacuated often very enormous.

On the Continent the operation of tapping is far more frequently tried than in our own country: and the German Miscellanies are full of cases of a successful event. In the volume of Nosology I have given an account of many of these; in several of which the quantity of water evacuated appears to have been very considerable. Thus, in one instance, a hundred and fifty pounds were discharged at a single time: in others, between four and five hundred pounds by different tappings within the year: and in a single example nearly seven thousand pints, in eighty operations, during a period of twenty-five years through which the patient laboured under this complaint; having hereby prolonged a miserable existence, which doubtless would have terminated without it much earlier, but which, perhaps, was hardly worth prolonging at such an expense. In the Berlin Medical Transactions there is a case of a

* Transact. of the King and Queen's College, Dublin, Vol. II. p. 1.

GEN. I. SPEC. IV. Hydrops thoracis. Dropsy of the chest.

cure effected by an accidental wound made into the thorax by which the whole of the water escaped at once *.

Cure effected by an accident.

In a few rare instances we have reason to believe that the disease has ceased spontaneously, judging from the trifling remedies that were employed at the time: as, for example, the specific of eighteen ounces of dandelion juice taken daily, which, according to Hautesierk, succeeded radically in one patient, or the use of small doses of squills alone, which, in the hands of Tissot, was equally fortunate in another.

Disease has sometimes ceased spontaneously.

SPECIES V.

HYDROPS ABDOMINIS.

Dropsy of the Belly.

TENSE, HEAVY, AND EQUABLE INTUMESCENCE OF THE WHOLE BELLY; DISTINCTLY FLUCTUATING TO THE HAND UPON A SLIGHT STROKE BEING GIVEN TO THE OPPOSITE SIDE.

GEN. I. SPEC. V. Ascites of authors. Causes and variable seat of the disease.

THIS is the ascites of nosologists. It is sometimes a result of general debility operating chiefly on the exhalants that open on the internal surface of the sac of the peritonæum and the abdominal muscles: sometimes occasioned by local debility or some other disease of one or more of the abdominal organs considerably infarcted and enlarged, and sometimes a metastasis or secondary disease produced by repelled gout, exanthems or other cutaneous eruptions: examples of all which are to be found in Morgagni †, and offer the three following varieties, which

* Act. Med. Berol. Vol. x. Dec. 2. p. 44.

† De Sed. et Caus. Morb. Ep. XXXVIII. Art. 49.

may not unfrequently be applied to the preceding species:

Gen. I. Spec. V. Hydrops abdominis. Dropsy of the belly.

α Atonica. Atonic dropsy of the belly.	Preceded by general debility of the constitution.
β Parabysmica. Parabysmic dropsy of the belly.	Preceded by or accompanied with oppilation or indurated enlargement of one or more of the abdominal viscera.
γ Metastatica. Metastatic dropsy of the belly.	From repelled gout, exanthems or other cutaneous eruptions.

α H. abdominalis atonica. Atonic dropsy of the belly.

In the FIRST VARIETY, the fluid is found in the cavity of the abdomen, or between the peritonæum and the abdominal muscles. It is produced by any of the causes of general debility, operating on an hydropic diathesis; and is frequently a result of scurvy, or various fevers.

β H. abdominalis parabysmica. Parabysmic dropsy of the belly.

In the SECOND VARIETY, the organ most commonly affected is the liver, which is occasionally loaded with hydatids, and has sometimes weighed twelve pounds. The gall-bladder is often proportionally enlarged and turgid, and has occasionally been found with an obliterated meatus, full of a coffee-like fluid, and together with its contents has weighed upwards of ten pounds. The accumulation has also sometimes been discovered in the omentum *, or sides of the intestines †. In this second variety the disease is often denominated an encysted dropsy; a term, however, which will quite as well apply to dropsies of the ovaria, the Fallopian tube, and even the uterus and scrotum, as to that of the liver.

γ H. abdominalis metastatica. Metastatic dropsy of the belly.

In the THIRD VARIETY the fluid is commonly deposited in the cavity of the abdomen; and is far more easily removed than in either of the others; often yielding, indeed, to a few drastic purges alone; except where, as sometimes happens in metastatic dropsy from repelled

* De Haen. Rat. Med. P. IV. p. 95. Senberlich, Pr. de Hydrope Omenti Saccato. Fr. 1752.

† Frank, in Commentation. Goetting. VII. 74.

Gen. I. Spec. V. γ H. abdominalis metastatica.

gout, the constitution has been broken down by a long succession of previous paroxysms.

Metastatic dropsy of the belly.

Under the veil of dropsy, pregnancy has often been purposely disguised; and, sometimes, on the contrary, where pregnancy has been ardently wished for and has actually taken place, it has been mistaken for a case of ascites: while, in a few instances, both have co-existed: Mauriceau, indeed, mentions a case of pregnancy recurring a second time along with dropsy*: and in an hydropic diathesis there is a general tendency to the latter whenever the former makes its appearance; for the exhalants of the abdomen are easily thrown into a morbid condition, and the pressure of the uterus, as it enlarges, weakens and torpefies their action. If dropsy occur at a period of life when the catamenia are on the point of naturally taking their leave, and where the patient has been married for many years without ever having been impregnated, it is not always easy, from the collateral signs, to distinguish between the two. A lady under these circumstances was a few years ago attended for several months by three or four of the most celebrated physicians of this metropolis, one of whom was a practitioner in midwifery, and concurred with the rest in affirming that her disease was an encysted dropsy of the abdomen. She was in consequence put under a very active series of different evacuants; a fresh plan being had recourse to as soon as a preceding had failed; and was successively purged, blistered, salivated, treated with powerful diuretics, and the warm-bath, but equally to no purpose: for the swelling still increased and became firmer; the face and general form were emaciated, the breathing was laborious, the discharge of urine small, and the appetite intractable; till at length these threatening symptoms were followed by a succession of sudden and excruciating pains, that by the domestics, who were not prepared for their appearance, were supposed to be the forerunners of a speedy dissolution, but which fortunately terminated be-

Pregnancy concealed under dropsy, or mistaken for it. Both have co-existed:

not always easy to distinguish between the two. Exemplified.

* Traité des Maladies des Femmes Grosses. II. p. 59—204.

fore the arrival of a single medical attendant, in giving birth to an infant that, like its mother, had wonderfully withstood the whole of the preceding medical warfare without injury.

GEN. I. SPEC. V. γ H. abdominalis metastatica. Metastatic dropsy of the belly.

In all common cases, the best means we can take to guard against deception, are to inquire into the state of menses, of the mammæ, and of the swelling itself. If the menses continue regular, if the mammæ appear flat or shrivelled with a contracted and light-coloured areola; and if the intumescence fluctuate to a tap of the fingers, there can be no doubt of its being a case of dropsy: but if, on the contrary, the mammæ appear plump and globular with a broad and deep-coloured areola; if we can learn, which, in cases where pregnancy is wished to be concealed, we often cannot do, that the catamenia have for some time been obstructed; and if the swelling appear uniformly hard and solid, and more especially if it be seated chiefly just above the symphysis of the pubes, or, provided it be higher, if it be round, and circumscribed,—though we may occasionally err, there can be little or no doubt, in most instances, of the existence of pregnancy. The most difficult of all cases is that in which dropsy and pregnancy take place simultaneously. It is a most distressing combination for the patient; and is usually treated with palliatives alone till the time of child-birth. Chambon advises that in urgent cases the legs and feet should be scarified*. But sometimes there is danger of instantaneous suffocation from the rapidity with which the dropsy advances and the disproportionate dilatation of the peritonæum, the abdominal muscles, and the integuments. M. Scarpa has noticed such cases, and recommends immediate tapping, and that the trochar be introduced between the edge of the rectus muscle in the left hypochondrium, and the margin of the false ribs; in which situation it will run the least risk of injuring the uterus†. The re-action, however, which takes place in the abdominal muscles and organs thus

Ordinary characters distinctive of dropsy.

Ordinary characters distinctive of pregnancy.

Case truly distressing when the two unite.

Scarification.

Tapping

* Maladies des Femmes. Tom. I. p. 28.

† Sulla Gravidanza susseguita de Ascite, &c. Frevise. 1817.

Gen. I. Spec. V. γ H. abdominalis metastatica.

suddenly set at liberty, is apt to bring on labour-pains and consequently to produce a miscarriage: and on this account the present author would recommend that the fluid should be drawn off at intervals, and not wholly at a single sitting.

Metastatic dropsy of the belly.

In what way to be performed.

Ordinary causes of dropsy of the abdomen, those of cellular dropsy.

Why the present species produced by these causes rather than cellular dropsy.

Why more frequent.

The ordinary causes of dropsy of the abdomen are those of cellular dropsy, of which we have treated at considerable length already, and to which the reader may therefore refer himself: the only difference being, as in dropsy of the chest, that the excernents of these cavities, are, from particular circumstances, more open at the time to the influence of whatever may happen to be the cause than the excernents of the cellular membrane, or of any other part of the system. From the extent, however, of the abdominal region, and the connexion of its cavity with so many large and important viscera, and especially with the liver, we can be at no loss in accounting for a more frequent appearance of dropsy under this species than under any other.

General symptoms.

Peculiar symptoms.

The general symptoms, moreover, are those of cellular dropsy. The appetite flags, there is the same aversion to motion and sluggishness when engaged in it, the same intolerable thirst, dryness of the skin, and diminution of all the natural discharges. The peculiar symptoms, as distinct from cellular dropsy, are the gradual swelling of the belly, and, as a consequence of this, a dry, irritable cough and difficulty of respiration.

Signs of encysted dropsy,

as distinguished from dropsy in the cavity of the abdomen.

It is often as difficult to determine whether the water be seated in the cavity of the abdomen or in the liver, omentum, or any other cyst, as in making a like distinction in dropsy of the chest. But, generally speaking, if we have previously had reason to suspect a diseased condition of any of these organs, if the abdominal swelling be local or unequal, and the constitution do not seem to enter readily into the morbid action, and the remaining functions retain a healthy vigour, we may suspect the dropsy to be of the encysted form. While, on the contrary, if the animal frame evince general weakness, if the limbs be edematous, the appetite fail, and the secretions be concurrently small and restricted, there is good reason for believing that the fluid is effused into the cavity of the peritonæum.

Gen. I. Spec. V. Hydrops abdominis. Dropsy of the belly.

Medical treatment.

Tapping rather than scarification.

Where the water is encysted the operation often unsuccessful.

But when in the peritonæal sac peculiarly useful: and to be performed early in the disease, after fluctuation is felt.

Operation will often require to be repeated

and that many times.

Sixty tappings within two years and a half.

The treatment of ascites, as to its general principles and plan, must be the same as that already laid down for anasarca or cellular dropsy: but here, instead of evacuating the water by scarification, we can often very advantageously, and more easily than in any of the preceding species, draw it off at once by tapping. Where, indeed, the dropsy is of the encysted kind, our efforts will often prove in vain; for we may either miss the proper viscus, or the fluid lodged in the separate vesicles of a vast aggregation of hydatids, amounting sometimes to seven, eight, or nine thousand at a time *, cannot be set free. But where it lies in the peritonæal sac alone, or on the outside of this sac alone, we can often afford very great relief by this simple process, and sometimes an effectual cure. It ought, therefore, by no means to be delayed, as it often is, till the debility from being local has become general, nor can the operation be too soon performed after a fluctuation is distinctly felt, and the swelling from its bulk has become troublesome to the breathing, and interferes with the night's rest. Nor should we be deterred if the first evacuation do not fully succeed. On the contrary, if the general strength seem to augment for some time after the operation, the appetite to improve, and the usual symptoms of the disease to diminish, we may take courage from our first success, and augur still more favourably from a second or even a third attempt if it should be necessary. Various cases have fallen to the lot of the author in which a radical cure has only been completed in this manner: nor are instances wanting in which the patient has only recovered after the twelfth time of operating. Hautesierk gives an instance of cure after sixty tappings within two years and a half, in conjunction with a steady use of aperients and tonics †: and Martin, in the Swedish Transactions, relates another instance of an infant of four years old restored after a second use of the trocar, in conjunction with a like course of medicines. The support of a broad belt or bandage should always be had recourse to

* Commerc. Nor. 1731, p. 271.

† Recueil, II.

Gen. I. Spec. V. Hydrops abdominis. Dropsy of the belly.

afterwards, which should be drawn as tight as the patient can bear it with comfort, for the pressure will tend to prevent a re-accumulation. In a few instances indeed, it has proved stimulant enough to excite the absorbents into rapid action, and carry off the water without the operation of tapping*.

Treatment. Broad belt or bandage passed tight. Internal evacuations. The thirst may be quenched by an indulgence in subacid drinks.

Internal evacuants therefore, as far as the strength will allow, and tonic restoratives generally, should be called to our aid through the entire process of cure, as already recommended under HYDROPS *cellularis*. The thirst, which is often unconquerable, and the most distressing of all the symptoms, may be allayed, as we have already pointed out, by a free use of subacid drinks, the desire for which is by no means to be repressed, as the absorbents of the skin are always stimulated by the irritation of an ungratified desire to imbibe far more fluid from the atmosphere than any indulgence in driking can amount to: as ordinary food, the alliaceous plants which give an agreeable excitement to the stomach, and at the same time quicken the action of the kidneys, will be found highly useful: and asparagus, which in an inferior degree answers the last of these purposes, may make a pleasant change in its season.

Alliacea for ordinary food, and asparagus.

Tapping does not always radically succeed: and why. But still useful as a palliative.

After all it must be confessed that tapping is often employed without radical success, for the disease, under all its modifications, is too often incurable. Yet even in the worst of cases it has its advantage as a palliative; and it is no small consolation to be able to procure temporary ease and comfort in the long progress of a chronic but fatal disease.

Quantity evacuated sometimes enormous. Exemplified.

The quantity evacuated by the operation of tapping has, in some instances, been enormous. It has often amounted to eight gallons at a time, and Dr. Stoerck gives an instance of twelve gallons and a half†. Guattani relates a case in which thirty pints of an oily fluid were, in like manner, evacuated by a single paracentesis. This disease was produced by an aneurismal affection‡, and it shows

* Hasson, Annuaire Medico-Chirurgical.

† Ann. Med. 1. p. 149. ‡ De Aneurismatibus.

great irregularity of action in the absorbent system: for while the absorbents of the peritonæal sac were in the utmost degree dull and torpid, those of the surface were in a like degree irritable, and drunk up all the animal oil from the cellular membrane, as well as all the moisture they came in contact with from the atmosphere. The operation has frequently been repeated forty or fifty times upon the same patient; and sometimes much oftener. In the Edinburgh Medical Communications is a case in which it occurred ninety-eight times within three years *. And in a foreign Journal of repute is another case in which the operation was repeated a hundred and forty-three times, though the total quantity evacuated is not given †. Dr. Scott of Harwich performed the operation twenty-four times in only fifteen months, and drew off a hundred and sixteen gallons in the whole ‡.

GEN. I. SPEC. V. Hydrops abdominis. Dropsy of the belly. Treatment. Operation often repeated on the same person. Exemplified.

Occasionally, both abdominal and cellular dropsy have been carried off by a spontaneous flow of water from some organ or other. In the latter species most frequently by a natural fontanel in some one of the extremities, as the hand, foot, or scrotum §. In the former by a spontaneous rupture of the protuberant umbilicus, of which the instances in the medical records are very numerous ‖: And hence many operators, taking a hint from this spontaneous mode of cure, have preferred making an incision into the umbilicus with a lancet to the use of the trocar. Paullini relates a singular mode of operation, and which, though it completely succeeded, is not likely to be had recourse to very often. The patient, not submitting to the use of the trocar, had the good fortune to be gored in the belly by a bull; the opening proved effectual and he recovered ¶.

Has been carried off spontaneously.

Has been cured by an accident.

* Vol. IV. p. 378. † N. Samml. Med. Wahrnemungen, B. III. p. 94.

‡ Edinb. Med. Comment. Vol. VI. p. 441.

§ Riedlin, Linn. Med. 1696. p. 258.—Schenck, Lib. III. Sect. II. Obs. 136. ex Hollerio. Obs. 140. 141.

‖ Desportes, Hist. de Malad. de St. Dominiques II. 122.—Schenck, Lib. III. Sect. II. Obs. 147.—Forestus, Lib. XIX. Obs. 83.

¶ Cent. II. Obs. 10.

Gen. I. Spec. V. Hydrops abdominis. Dropsy of the belly. Treatment. Sometimes carried off by a vicarious discharge. Venesection.

There are also a few instances of a subsidence of the accumulation upon a spontaneous efflux of some other kind; especially of blood, and chiefly from the hemorrhoidal vessels *. Where, indeed, as has sometimes happened, abdominal or cellular dropsy, or both, have been produced from inflammatory oppilation, on suddenly catching cold, free venesection has proved the most effectual, and sometimes the only means of carrying it off, which in a few instances it has, with a general freedom of action to the kidneys, as well as to other organs almost instantaneously †.

SPECIES VI.

HYDROPS OVARII.

Dropsy of the Ovary.

HEAVY INTUMESCENCE OF THE ILEAC REGION ON ONE OR BOTH SIDES: GRADUALLY SPREADING OVER THE BELLY; WITH OBSCURE FLUCTUATION.

Gen. I. Spec. VI. May be mistaken for pregnancy; or a variety of abdominal dropsy. In the last case, the mistake of not much importance.

There is the same difficulty in distinguishing this disease from pregnancy as in dropsy of the belly: and, consequently, the same mistakes have occasionally been made. There is also quite as much difficulty in distinguishing it from the parabysmic variety of abdominal dropsy, especially when the liver is the organ enlarged and filled with hydatids. Yet in this last case, the confusion is of less consequence as the general mode of treatment will not essentially vary. Pregnancy, when it first alters the shape, produces an enlargement immediately over the pubes, which progressively ascends, and when it reaches the umbilicus assumes an indefinite boundary. In the atonic

Distinguishing signs of pregnancy.

* Saviard, Observ. Chir. Eugalenus, p. 150.

† Edinb. Med. and Surg. Journ. No. LXXI. Dr. Graham.

or common variety of abdominal dropsy, the swelling of the belly is general and undefined from the first. And in dropsy of the ovary or ovaries, it commences laterally, on one or both sides, according as one or both ovaries are affected. And it is hence of the utmost importance to attend to the patient's own statement of the origin of the disease and the progressive increase of the swelling. It is generally moveable when the patient is laid on her back; and as the orifice of the uterus moves also with the motion of the tumour, by passing the finger up the vagina, we may thus obtain another distinctive symptom. Where there are several cysts in the ovary, we may perceive irregularities in the external tumour resembling, to the touch, those of scirrhus.

Dropsy of the ovary. Distinguishing signs of dropsy of the ovary.

This disease is sometimes found in pregnant women, but far more commonly in the unimpregnated and the barren. It is also met with in the young and those who regularly menstruate, as well as in those whose term of menstruation has just ceased. The accumulation of fluid is often here also very considerable. Morand drew off four hundred and twenty-seven pints, within ten months*; and Martineau four hundred and ninety-five within a year; and from the same patient six thousand six hundred and thirty-one pints by eighty punctures within twenty-five years†.

Sometimes found in pregnant women: but more frequently in barren. Found also in the young as well as in the old. Quantity of fluid considerable.

The disease commences, and indeed often continues for years, without much affection of the general health; yet it is insidious, and the constitution at length suffers and falls a prey to it.

Disease little observed at first, but preys upon and at last undermines the general health.

Internal medicines have been rarely found efficacious, and when tried must consist of those already noticed in the treatment of cellular dropsy. Tapping affords the same ease as in abdominal dropsy, and the operation is to be performed in the same manner. I had lately a lady under my care for six or seven years, who required the operation to be performed at first every six months, afterwards every three months, and at length every month or

Medical treatment. Internal medicines. Tapping:

* Mem. de l'Acad. de Chir. II. 448. † Phil. Trans. 1784. p. 471.

GEN. I. SPEC. VI. Hydrops ovarii.

six weeks. She rose from it extremely refreshed, and in good spirits; and often on the same evening joined a party of friends, and was sometimes present at a musical entertainment. In about six years, however, her health completely gave way, and she sunk under the disease.

Dropsy of the ovary. Treatment.

affords rapid ease.

So little, however, is the general health interfered with for the first year or two, that the patient occasionally becomes pregnant, while the accumulation continues to increase, and often produces a living offspring. Sir L. Maclean, has given an interesting case of this kind, in which there was not only an extensive dropsy, but an abscess of the ovary, and a discharge of pus as well as of water on tapping which was performed five times during a single pregnancy. The patient passed easily through her labour, but died within five months afterwards upon a bursting of the abscess into the peritonæal sac. On examining the body, two pints of "a thick, brown, well digested pus were found to have escaped into the cavity of the abdomen, and three pints more in the ovarian sac. The opening was large enough to admit of three fingers; and the external surface of both the large and small intestines was found inflamed, and verging in some places on gangrene". This my learned friend ascribes to the influence of the pus that had escaped and was in contact with them *: but as the fluid is said to have been "well digested pus", the inflammation is, I think, more probably to be attributed to sympathy with the lacerated ovarium in its actual state of irritation from so large a rent, and so much larger an inflamed surface in its interior.

Pregnancy occurring during the existence of disease. Exemplified from Maclean.

Fluid often lodged in cysts or hydatids. Hence great difficulty in puncturing successfully.

The fluid is in this species also, sometimes lodged in a cyst, occasionally in many cysts, or perhaps hydatids, and there is great difficulty in ascertaining its exact situation, and consequently in puncturing it, and especially in evacuating the water where there is more than one cyst. A distinguished and skilful friend of the author's not long since made an attempt on a lady, who had been affected with the disease for some years; yet unfor-

* Enquiry into the Nature, &c. of Hydrothorax. Appx. p. 1. 8vo. 1810.

GEN. I. SPEC. VI.

tunately not a drop of serum ensued, but instead of it a pint of blood. The swelling of the abdomen has since increased to an enormous size; internal medicines have proved of little avail, and she has not consented to another trial of the trocar. It was probably from an equal want of success that Tozzetti long since declared the operation to be of no avail*; and that Morgagni denounced it not only as useless but mischievous†. La Dran endeavoured to effect a permanent cure afterwards by incision and suppuration as in the radical cure for scrotal hernia. Other practitioners have used injections of port wine; and others again have forced a tent into the wound made by the trocar, or some other incision. These have sometimes succeeded; but a dangerous inflammation is too apt to follow, and occasionally death itself‡. Dr. Percival relates a case of cure produced by vomiting; in which a salutary transfer of action seems to have taken place §.

Hydrops ovarii. Dropsy of the ovary. Treatment. Illustrated.

Hence the operation declared by Tozzetti to be of no use.

Radical cure by inflammation.

Cure by vomiting.

Extirpation of the diseased ovarium was rather proposed than practised by the surgeons of the preceding century. De Haen regarded the operation as doubtful ‖; and Morgagni asserted it to be impossible ¶. L'Aumonier, however, chief surgeon of the Rouen hospital, successfully extracted the organ upwards of fifty years ago; and a few other practitioners have operated with a like favourable issue since: and especially in several parts of America. Thus Dr. Smith, of Yale College, Connecticut, has completely succeeded in removing the organ, notwithstanding the operation was impeded by numerous adhesions **: while Dr. M'Dowal of Kentucky has not only, in several cases, extirpated with a full restoration to health, a dropsical, or otherwise diseased ovary, but laid open the peritonæum to a great extent for extirpating other morbid humours in the abdomen ††.

Extirpation proposed but objected to.

Performed successfully.

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* Osservazioni, &c. † De Sed. et Caus. Morb. Ep. XXXVIII. Art. 68, 69.
‡ Denman, Introduction to the Practice of Midwifery. Ch. III. Sect. XII.
§ Ep. II. p. 156. ‖ Rat. Med. P. IV. c iii. § 3.
¶ De Sed. et Caus. Morb. Ep. XXXVIII. Art. 69, 70.
** American Med. Rec. 1822. †† Edinb. Med. Journ. No. LXXXI. p. 250.

SPECIES VII.

HYDROPS TUBALIS.

Dropsy of the Fallopian Tube.

HEAVY ELONGATED INTUMESCENCE OF THE ILEAC REGION, SPREADING TRANSVERSELY; WITH OBSCURE FLUCTUATION.

GEN. I. SPEC. VII. Species rarely met with. Tapping may be tried but its success doubtful.

THIS species is not common. Dr. Baillie, however, among others, has particularly noticed and described it in his morbid anatomy, in a case referred to in the volume of Nosology. Its mode of treatment is that of dropsy of the ovary. Tapping may be attempted, but as the water lies frequently in the hydatid-vesicles or distinct sacs, success is doubtful.

Quantity of fluid exceeds that of the last. Exemplified.

The quantity collected is for the most part larger than in the ovarium. Munnik mentions a case in which the distended tube contained a hundred and ten pints of fluid*; Harder one in which the fluid measured a hundred and forty pints†; and Cypriani another that afforded a hundred and fifty pints at a single tapping‡. Weiss describes a case of complicated dropsy distending both the ovarium and the Fallopian tube§.

Causes, progress and internal treatment as under the last.

The causes, and progress as well as general mode of treatment are those of dropsy of the ovary. Its chief distinctive symptom is the elongated line which the swelling assumes and the direction it takes towards the illeac region on the one side or on the other.

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* Apud Manget. † Apian. Obs. 87, 88.

‡ Epistola historiam exhibens fœtûs humani ex Tuba excisi. Leid. 1700.

§ Abhandl. einer ungewöhnlichen Krankheit, &c. Rastadt, 1785.

SPECIES VIII.

HYDROPS UTERI.

Dropsy of the Womb.

HEAVY, CIRCUMSCRIBED PROTUBERANCE IN THE HYPOGASTRIUM, WITH OBSCURE FLUCTUATION; PROGRESSIVELY ENLARGING, WITHOUT ISCHURY, OR PREGNANCY; MOUTH OF THE WOMB THIN AND YIELDING TO THE TOUCH.

Gen I. Spec. VIII. Hydrometra of Sauvages, who makes the species numerous but not called for.

Sauvages makes not less than seven species of this disease, which he calls hydrometra, and which with him occurs as a genus. The distinctions, however, are of too little account to call for such a subdivision; and one or two of the species has been by many writers regarded as doubtful: particularly the hydrometra gravidarum, or dropsy of the womb during pregnancy*. Dr. Cullen conceives it to be altogether unfounded, and hence makes the symptom of *citra graviditatem* a pathognomic character of the complaint. But to this subject we shall have to return presently.

Often found in cysts:

The disease is rarely however to be met with in the cavity of the uterus, and when this is the case the orifice is perfectly closed. It is much more frequently to be found in a particular cyst, or the walls of an hydatid, or a cluster of hydatids, or between the tunics of the organ.

Supposed causes.

Carron ascribes it in various cases to a debility of the uterus produced by a chronic leucorrhœa†. Other writers to the stimulus of pent-up coagulated blood, sometimes assuming an encysted structure‡. It is for the most part the result of a scirrhous or some other morbid change in the organ, producing debility and occasionally fever. A membranous or cellular dropsy is the variety most commonly assumed, in which the uterus is sometimes dis-

* Clarke, Observations on the Disease of Females, &c. 8vo. 1821.

† In Blagny, Zodiac, 1781. ‡ Act. Nat. Cur. Vol. VII. Obs. 61.

GEN. I. SPEC. VIII. Hydrops uteri. Dropsy of the womb. Medical treatment.

tended to an enormous size, and the abdomen seems to be labouring under an anasarca.

The water when in the cavity of the uterus, may often be evacuated by a canula introduced into the mouth of the organ; and if this should be prevented by a scirrhus, cicatrix, or tubercle lying over its mouth, a rupture of the sac in which the fluid is lodged may sometimes be produced by a violent shock of electricity passed through the hypogastric region, hard exercise, or emetics.

A sudden fall has often had the same effect. Tozzetti relates a case of cellular dropsy of the womb which extended down the thigh and leg on one side; and disappeared by a spontaneous discharge of the water from the cuticle of the leg affected*.

The uterus has also been said to be sometimes affected with dropsy in consequence of a conveyance of the water accumulated in the cavity of the abdomen in dropsy of the belly, into the uterine cavity by means of the fringy termination of the Fallopian tubes. Of this cause, however, there does not appear to be any satisfactory proof. "Yet I must confess", says Dr. Denman, "I have seen some cases of water collected, and repeatedly discharged from the uterus in the state of child-bed, which I was unable to explain on any other principle."† Possibly, in this last case, a better explanation might have been sought for in an irritable state of the vessels that throw forth the liquor amnii during pregnancy itself, and which, under this kind of stimulus, may have secreted it to excess.

Dropsy of uterus while in a state of pregnancy accounted for.

This, in effect, is the commonly supposed cause of a dropsy of the uterus while in a state of pregnancy; which, however denied by some writers, appears to be very sufficiently established, and to be even capable of removal by the operation of paracentesis. Langio‡ and Lamper§ recommend this mode of treatment, and Scarpa

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* Osservazioni Mediche. Firenz. 1752.

† Introduction to the Practice of Midwifery. Ch. III. Sect. IX.

‡ Lib. I. Epist. XXIX. § Dissert. de Hydrope.

gives an instance of its curative effect. "In October 1808," says he, "my colleague Nessi successfully punctured the dropsical uterus of a country woman, aged thirty-five years, who, in the fifth month of her pregnancy, was threatened with suffocation. The perforation was made in the linea alba, between the pubes and the umbilicus. The woman gave birth to two children who died soon after. The patient rose on the fourteenth day from that of th operation, but was seized with menorrhagia, which, however, was productive of no ultimate evil." This result is to be expected; for we have already observed that even tapping in ascites during pregnancy is apt to lead to a like issue. Scarpa himself was once consulted in a case of dropsy of the abdomen in conjunction with a probable dropsy of the womb. On performing the operation for the former, as we have already described it, from twenty-five to thirty pounds of fluid were evacuated, and the patient immediately felt great relief. But on the ensuing night labour-pains were induced, and two fetuses of six months old were expelled which died in a few seconds; antecedently to the birth of which, upon a rupture of the membranes not less than fifteen pounds of liquor amnii, as calculated by the attendants, were thrown forth as by a flood. The patient had a rapid recovery, and in a few years became twice pregnant, and was delivered with facility*.

Gen. I. Spec. VIII. Hydrops uteri. Dropsy of the womb. Mode of cure exemplified.

Complicated with abdominal dropsy.

The internal treatment of this species of dropsy is that of the preceding.

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* Sulla Gravidanza sussiguita da Ascite. Trevisis 1818.

SPECIES IX.

HYDROPS SCROTI.

Dropsy of the Scrotum.

SOFT TRANSPARENT, PYRIFORM INTUMESCENCE OF THE SCROTUM; PROGRESSIVELY ENLARGING, WITHOUT PAIN.

Gen. I. Spec. IX. Hydrocele of Heister and others.

This is the hydrocele of Heister, and other writers: and offers the two following varieties:

α Vaginalis. Vaginal dropsy of the scrotum.	The fluid contained in the tunica vaginalis or surrounding sheath of the testis.
β Cellularis. Cellular dropsy of the scrotum.	The fluid contained in the cellular membrane of the scrotum.

α H. scroti vaginalis. Vaginal dropsy of the scrotum.

The ordinary causes of the FIRST VARIETY are organic atony, and organic violence as a contusion, and perhaps repelled buboes. Van der Harr asserts that it occurs more frequently on the left than on the right side*; and Jonston that it is never found on the latter†. Delattre describes a case of congenital affection‡.

β H. scroti cellularis. Cellular dropsy of the scrotum.

The SECOND VARIETY takes easily the pressure of the finger, and is mostly an accompaniment of general cellular dropsy, or a prelude to it. If it be an idiopathic affection it may be removed by scarification.

The vaginal, or first variety, the proper disease. Varies in the speed of its advance. Tunic sometimes distended.

The vaginal dropsy of the scrotum is the proper disease, and is elastic to the touch. It sometimes takes place with great rapidity, and sometimes very slowly. The tunic is, in some cases, extremely distended, and the whole scrotum rendered transparent, so that a candle may be seen through its contents.

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* Waarneeminge. † Works, iv. 72. ‡ Journ. de Med. Tom. xxxix.

Gen. I. Spec. IX. Hydrops scroti. Dropsy of the scrotum. Treatment. Has weighed sixty pounds.

On the Malabar coast, Kœmpfer asserts that the disease is endemic*; and the scrotum has been sometimes found to weigh sixty pounds†. And Mr. D. Johnson of the Bengal establishment tells us that the native surgeons cure it sometimes by a cataplasm of tobacco leaves, and sometimes by one of pounded indigo leaves, and crude sal ammoniac. He adds that they perform occasionally the operation for a radical cure by incision‡.

Medical treatment. Emetics. Astringent and other injections. If these fail the sac to be opened: but the water soon re-accumulates.

In recent cases, emetics have appeared peculiarly serviceable: and astringents and stimulants may be tried in the form of cataplasms or fomentations; as vinegar, with or without a solution of muriate of ammonia, or neutralized with volatile alkali. Though where there is much pain leeches should be previously applied. If this do not succeed the sac must be opened, and the fluid be evacuated by a lancet or the trocar. But the water soon re-accumulates, and the same palliative must usually be had recourse to three or four times a year. Van Swieten mentions the case of a dignified ecclesiastic who was obliged to have the operation performed every three months for twenty years in succession§. And I had lately a patient who submitted to it as often, for many years of the latter part of his life, though he did not live so long as Van Swieten's patient.

The only radical cure an obliteration of the cavity by exciting inflammation. Various modes of accomplishing this.

The only radical cure we are acquainted with is that of obliterating the cavity, by exciting an inflammation in the vaginal and albugineous tunics, or in the latter alone. By the first of these operations the two tunics adhere together, and, the cavity being destroyed, there can be no subsequent accumulation. Thus inflammation may be excited by a seton, a caustic, the introduction of an irritating fluid by means of a syringe, as brandy, diluted spirits of wine, or a solution of corrosive sublimate; or by incision. This was the ordinary plan pursued till of late years, and the particular modes of carrying it into

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* Amœnitat. Exotic. † Mémoires de Paris, 1711. p. 30.

‡ Miscellaneous Observations on certain indigenous Customs, Diseases, &c. in India.

§ Comment. ad § 259.

GEN. I. SPEC. IX. Hydrops scroti.

effect were equally countenanced by surgeons of reputation.

Dropsy of the scrotum. Treatment. Inflammation confined to the tunica albuginea: as recommended by Ramsden and Wood.

For the later and simpler process, or that which consists in confining the inflammation to the tunica albuginea, we have been chiefly indebted of late years to Mr. Ramsden, and Mr. Kinder Wood. The last, after evacuating the fluid, draws forward with a small hook "that portion of the tunica vaginalis presenting at the external opening, and cuts it away with a pair of scissors, immediately closing the external opening with adhesive plaster. By which means a moderate inflammation of the membrane will be insured, and I am led to hope," says the ingenious writer, "that the success will be frequent".* In effect Mr. Wood gives various instances of complete success. The piece snipped off is very small, and very little inconvenience is suffered. The inflammation under this mode of operating is so inconsiderable as to be confined to the tunica vaginalis alone, and consequently the cavity between the two tunics is not obliterated as is obvious by the testis being still able to roll to a considerable extent within the scrotum. This plan, therefore, is best adapted for dropsies of recent standing, and where the sac is not much thickened and indurated. In old and obdurate cases it will mostly be found necessary to carry the inflammation so far as to obliterate the cavity.

Similar plan formerly proposed by Douglas: perhaps by Celsus.

Mr. Wood does not seem to be aware that Mr. John Douglas employed a similar remedy as a radical cure in the cellular dropsy of the scrotum, and recommended it in his Treatise on Hydrocele, published in this metropolis in 1755. Celsus appears also to have glanced at the same in both kinds of dropsy †.

Complicated case in which both tunics were laid open.

In a case on which the author was consulted some few years ago, the patient, a gentleman far advanced in life, and who had been regularly tapped about once in three months for five or six years antecedently, found a considerable hemorrhage ensue shortly after the last operation,

* Trans. of the Medico-Chir. Soc. Vol. IX. 49.

† De Medicin. Lib. VII. cap. 21.

but which yielded on immersing the scrotum into water chilled to the freezing point. The hemorrhage, however, returned within two days, and the scrotum was again as much distended, though manifestly with blood, as before the trocar had been applied. It was clear that a pretty large artery had been accidently wounded, or that the internal parts were in a very morbid condition. To ascertain the real fact, and put a stop to the discharge, the scrotal and vaginal tunics were immediately laid open from the top to the bottom, and a pretty strong pressure made between the testicle and the sides of the latter tunic with folds of lint which effectually restrained the hemorrhage, without the necessity of pausing to take up any vessel. On examining the organ more closely on the ensuing day, a foul and spongy ulcer was detected on the tunica albuginea, from which the hemorrhage had proceeded: by a course of warm digestive dressing, however, both the wound and the ulcer healed, and a radical cure of the dropsy was completely accomplished *.

GEN. I. SPEC. IX. Hydrops scroti. Dropsy of the scrotum. Treatment.

The clitoris has sometimes been found affected with the second or cellular variety, and acquired a considerable size. The earliest writer who seems to have noticed this sort of dropsy is Aëtius †; and it has since been described or adverted to by Van Swieten ‡, Saviard §, Manoury ‖, and various others under the name of hydrocele *muliebris* or *fœminina*.

Clitoris sometimes affected with a like dropsy.

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* See, for a case somewhat similar, Edin. Med. Ess. II. Art. XIV. by Mr. Jamieson.

† Tetrab. IV. Serm. II. c. 22. Serm. IV. c. 100.

‡ Comment. ad § 1227. § Nouveau Recueil, &c.

‖ Journ. de Med. 1790.

GENUS II.

EMPHYSEMA.

Inflation. Wind-Dropsy.

ELASTIC AND SONOROUS DISTENTION OF THE BODY OR ITS MEMBERS, FROM AIR ACCUMULATED IN NATURAL CAVITIES, IN WHICH IT IS NOT COMMONLY PRESENT.

GEN. II. Origin of generic term.

THE term EMPHYSEMA is derived from ἐμ- or ἐν- and φυσάω "inflo" "flatu distendo". It has often been made a question by what means the air is obtained in various cavities, in which it is found in great abundance; for we cannot always trace its introduction from without, nor ascribe it to a putrefactive process. Fantoni found air seated between the tunics of the gall-bladder, and Hildanus in the muscles. "In one instance", observes Mr. J. Hunter, "I have discovered air in an abcess which could not have been received from the external air; nor could it have arisen from putrefaction."* The case is singular and well entitled to attention, but too long to be copied. From this and various other circumstances, Mr. Hunter conceived the opinion that air is often secreted by animal organs, or separated from the juices conveyed to them: and he appeals, in confirmation of this opinion, to the experiments of Dr. Ingenhouz upon vegetables. I have not had an opportunity of reading these experiments, but that such a sort of secretion exists in plants must be obvious to every one who carefully examines the inflated legume of the different species of bladder-senna (colutea), and the capsules of several other shrubs quite as common in our gardens, and which can only become inflated by a

Air found in various cavities whose entrance cannot be traced from without. Supposed by J. Hunter to be secreted from the juices of the blood.

Philological facts in confirmation of this opinion.

* Anim. Econ. p. 207.

separation or secretion of air from the surrounding vessels. Yet an appeal to a variety of curious facts in the economy of numerous animals will perhaps answer the purpose much better, as leading us more directly to the point. The sepia *officinalis*, or cuttle-fish, and the argonauta *Nautilus*, the ordinary parasitic inhabitant of which—for we do not know the animal that rears the shell,—has a very near resemblance to the cuttle-fish, and as suspected by Rafinesque, and since determined by Cranch, is a species of ocythoë*, introduce air at option into the numerous cells of the back-bone, and thus render themselves specifically lighter whenever they wish to ascend from the depths of the sea to the surface; and, in like manner, exhaust the back-bone of its air, and thus render themselves specifically heavier whenever they wish to descend. All fishes possessing a sound or air-bladder are equally capable of supplying this organ with air, first for the purpose of balancing themselves, and next apparently for that of raising themselves towards the surface. In all these cases the air thus introduced and accumulated, appears to be a direct secretion: at least we cannot otherwise account for its presence, as we can easily do in the bones of birds whose cells are filled with air; for we can here trace an immediate communication with the air-cells of the lungs, and as a secretion, Dr. Baillie was induced to regard the air accumulated in one or more emphysematous affections that occurred in his practice †.

GEN. II. Emphysema. Inflation. Wind-dropsy. Other facts in support of the same derivable from animal physiology. Cuttle-fish. Nautilus.

Sound or air-bladder of fishes how supplied.

Searched in some emphysematous affections.

Mr. Bauer has lately shown that a gass is constantly shooting forth in small bubbles from the roots of plants into the slimy papulæ by which they are surrounded; and that it is by this mean that the slimy matter becomes elongated, is rendered vascular, and converted into hair or down. Mr. Brande has also shown that gass, meaning hereby carbonic acid gass, exists in a considerable quantity in the blood while circulating in the arteries and veins,

Microscopic experiments of Bauer on the formation of vegetable down or hair. Experiments of Brande on

* Phil. Trans. 1817. p. 293.

† Transact. of a Society for the Improvement of Medical and Chirurgical Knowledge.

GEN. II. Emphysema. Inflation. Wind-dropsy.

and is very largely poured forth from blood placed, while warm, under the receiver of an air-pump, so as to give an appearance of effervescence. He calculates that two cubic inches are extricated from every ounce of blood thus experimented upon, the venous and arterial blood containing an equal proportion. And Sir Everard Home, has hence ingeniously conjectured that it is by the escape of bubbles of this gass through the serum, in cases of coagulated blood, that new vessels are formed, as also that granulations are produced in pus; from which it appears that the same gass escapes with equal freedom.

blood, showing the existence of air in this fluid. Illation of Home from these facts.

Preceding experiments of Hales and Haller, confirmed by those of Davy.

These results of Mr. Brande, are in perfect accordance with the well known experiments of Dr. Hales and Baron Haller, upon the same subject, which of late years appear to have been too much neglected, if not discredited. The former asserts that in distilling blood, a thirty-third part of the whole proved to be air: and the latter confirms the assertion; "utique", says he, "ferè trigesima tertia pars totius sanguinis verus est aër." The inquiry has since been followed up by Dr. Davy, who has not only confirmed many of the same results, but given an accurate analysis of the air thus, in various cases, accumulated*. From all which we may reasonably conjecture that the body of air found in many cases of, perhaps all, the species of emphysema, is produced, like other fluids found in the different cavities of the animal frame, by a process of secretion. These species are three, and are as follow:

1. EMPHYSEMA CELLULARE. CELLULAR INFLATION.
2. ——————— ABDOMINIS. TYMPANY.
3. ——————— ÚTERI. INFLATION OF THE WOMB.

There are probably many others—but these are the only ones which have been hitherto distinctly pointed out.

* Observations on Air found in the Pleura, &c. Phil. Trans. 1808.

SPECIES I.

EMPHYSEMA CELLULARE.

Cellular Inflation.

TENSE, GLABROUS, DIFFUSIVE INTUMESCENCE OF THE SKIN, CRACKLING BENEATH THE PRESSURE OF THE FINGER

Gen. II. Spec. I. The pneumatosis of some writers.

THIS is the pneumatosis of Sauvages and Cullen, and consists in a distention of the cellular membrane by air instead of by water, as in hydrops *cellularis* or anasarca. The distention is sometimes limited to particular parts of the body, and sometimes extends over the entire frame.

From the remarks we have just offered on the probable separation or secretion of air from the blood, this disease may originate from various causes, and exhibit itself under various modifications: but the two following are the only extensive forms under which it has hitherto been traced:

α	A vulnere thoracis. Traumatic Emphysema.	From a wound in the chest, with sense of suffocation.
β	A veneno. Empoisoned Emphysema.	From fish-poison or other venom; with extensive signs of gangrene and putrescency.

α E. cellulare à vulnere thoracis. Traumatic emphysema. Pathology.

FOR THE FIRST OF THESE VARIETIES there is no great difficulty in accounting. If a wound so far penetrate the chest as to enter any part of the lungs, and divide some of the larger branches of the bronchiæ, the inspired air, instead of being confined to its proper channels, will rush immediately into the chest and fill up its whole cavity; as it will also frequently into the cellular membrane of the lungs, from which it will find a passage into the cellular membrane of the entire body, and produce an universal inflation.

GEN. II. SPEC. I. a E. cellulare à vulnere thoracis. Traumatic emphysema. Description.

This last effect is highly troublesome and distressing: but the first is productive of the utmost alarm. The lungs compressed on every side by the extravasated air, are incapable of expansion: and there is consequently an instantaneous danger of suffocation. The patient labours for breath with all his might, and labours to but little purpose; his cheeks are livid, his senses soon become stupefied, the heart palpitates violently, the pulse is rapid but small; and, without speedy relief, death must inevitably ensue. The distress is moreover sometimes aggravated by the excitement of a cough, in the fits of which, if any considerable blood-vessel have been burst, blood is expectorated along with the rejected mucus. It is this form of emphysema which constitutes the pneuma-thorax of Itard and Laennec, or the pneumato-thorax, as it is more correctly called, of Dr. John Davy, who has described two cases in which the communication seems to have been produced by a suppurated tubercle that formed an opening from some branch of the bronchiæ into the sac of the pleura *.

Pneuma-thorax of Itard and Laennec. Pneumato-thorax of Davy.

Exemplified by a singular case.

Mr. Kelly, in the Edinburgh Medical Commentaries, has given a very singular case of this affection from a like cause in which the inflation extended widely over the body. The patient, almost fifty-seven years of age, had long laboured under a chronic cough and difficulty of breathing. The emphysema began to appear on the second day after a most violent fit of coughing, laborious respiration, and pain in the side. It soon covered the whole right side to the scrotum which was also much inflated, producing a crackling sound upon pressure; and, gradually widening its course, by the fourth day it extended over the whole body. It was at first conceived that air had entered from without into the cellular membrane by means of some wound in the side; but no such injury or any other channel of communication could be discovered. The symptoms, however, were so pressing that it was at length determined, under the advice of Dr.

* Phil. Trans. 1823, ut suprà.

Munro, to afford an escape for the air, by an opening into the cavity of the chest. The pleura was in consequence tapped; when upon withdrawing the perforator, such a blast of wind issued through the canula, as to blow out a lighted candle three or four times successively. The patient immediately became easy and free from oppression, and his pulse fell from above a hundred strokes in a minute to ninety. Punctures were at the same time made into the cellular membrane in different parts of the body, and from these also the imprisoned air puffed out upon pressure but not otherwise. The patient recovered gradually, and in about three weeks ate and slept as well as he had done at any time for thirty years before. For nearly a twelvemonth he continued to enjoy a good state of health; but about the close of this period was again attacked with a cough, a pain in the chest, and a difficulty of breathing; a hectic fever followed, and he died in about six weeks. On opening the thorax, Mr. Kelly tells us that he found the lungs "in a very putrid diseased state, with some tubercles on the external surface of the right lobe; there was extensive adhesion to the pleura, particularly at the place where the pain had been felt most keenly before the perforation; and, on making an incision into the right lobe, an abscess was discovered which contained about four ounces of fetid purulent matter."* We are hence, I think, led to conjecture that the emphysema was in this case produced by the bursting of a former abscess in the right lobe of the lungs, accompanied with a rupture of one or more of the bronchial vessels, in consequence of which the same effect followed as if a wound had been inflicted from without.

GEN. II. SPEC. I. α E. cellulare à vulnere thoracis. Traumatic emphysema. Treatment.

Explanation of the above case.

Where it is necessary to evacuate the air from the cavity of the chest, by an artificial opening, the operator cannot do better than follow the example of Mr. Hewson who employed a scalpel, and introduced it into the forepart of the thorax, either on the right or left side; but between the fifth and sixth ribs in the former case, be-

Paracentesis how to be performed as recommended by Hewson.

* Edin. Med. Comment. Vol. II. p. 427.

GEN. II. SPEC. I.

cause here the integuments are thin; and between the seventh and eighth, or the eighth and tenth in the latter, for the purpose of avoiding the pericardium.

β E. cellulare à veneno. Cellular emphysema from poison. General description.

The inflation which follows so suddenly and so extensively in the SECOND VARIETY, or upon the introduction of fish-poison, or that of several species of the mushroom or numerous other edible venoms into the stomach, it is not so easy to account for. In most of the cases there is so violent and general a disturbance of every function, as to produce extreme and instantaneous debility; all the precursors of putrescency are present, and speedy dissolution is threatened. Every part of the body is swollen and inflated, particularly the stomach and intestines, the vapour of which, when examined after death, is found to consist of a fetid and putrid gass: a blackish and greenish froth is discharged from the mouth; clonic or tetanic spasms play wildly over all the muscles; the chest labours with suffocation, the brain is stupefied, and broad, livid or gangrenous spots spread over the body; and on dissection are found still more freely, and of larger diameter on the surface of most of the thoracic and visceral organs.

Production of air explained and accounted for.

If then, in a state of undisturbed organization, many parts of the body have a power of secreting or separating air from the blood, as we have endeavoured to show in the introductory remarks to the present genus, how much more readily may we suppose such a separation to take place in proportion as the organs approach that precise state in which the gasses of the blood extricate themselves spontaneously from its other constituents. And it may be added that this explanation is confirmed by our perceiving that the most effectual remedies against all such inflations are the most powerful antiseptics we can employ: as acids, alcohol, and the aromatics.

Hence gangrene a cause of cellular emphysema.

In few words, we never cease to find a free extrication of air whenever the body or any part of it is running rapidly into a state of putrefaction: and hence another cause of cellular emphysema, and a cause that is perpetually occurring to us in gangrene.

SPECIES II.

EMPHYSEMA ABDOMINIS.

Tympany.

TENSE, LIGHT, AND EQUABLE INTUMESCENCE OF THE BELLY; DISTINCTLY RESONANT TO A STROKE OF THE HAND.

GEN. II. SPEC. II. The tympanites of authors.

THIS disease is the tympanites of authors, so called from the drum-like sound which is given on striking the belly with the hand.

There have been many occasions of observing that the Greek termination *itis* or *ites*, is, for the sake of simplicity and perspicuity, confined, in the present system, to the different species of a single genus of diseases, that of EMPRESMA, of which we have treated already*: and hence, as well as for other reasons sufficiently obvious, the specific term before us has been selected in its stead.

Tympanites intestinalis of Sauvages—the only tympanites of Cullen:

Tympanites, however, is by most writers applied principally to an enormous collection or evolution of air in some part or other of the alvine canal, constituting the tympanites *intestinalis* of Sauvages: and it is to this disease alone that Dr. Cullen confines his attention, when treating of the subject in his First Lines. This flatulent distention he ascribes to an atony of the muscular fibres of the intestines, accompanied with a spasmodic constriction in parts of the canal; by which means the passage of the air, is, in some places, interrupted. In this view of the case, however, tympany, instead of being entitled to the rank of a distinct genus, is nothing more than a symptom or sequel of some other enteric affection, as dyspepsy, colic, worms, or hysteria: and hence the remedies applicable to these are what Dr. Cullen recommends for tympanites—namely, avoiding flatulent food, laxatives, and tonics.

in which case the disease is a mere symptom of some other affection.

* Vol. II. Cl. III. Ord. II. Gen. VII. p 382.

GEN. II. SPEC. II. Emphysema abdominis. Tympany.

The disease may exist, as conjectured by Hunter, as an idiopathic affection.

Mr. John Hunter seems to have conceived that a tympany of the stomach or intestines may exist as an idiopathic complaint. "I am inclined", says he, "to believe that the stomach has a power of forming air and letting it loose from the blood by a kind of secretion. We cannot, however, bring any absolute proof of this taking place in the stomach, as it may in all cases be referred to a defect in digestion; but we have instances of its being found in other cavities where no secondary cause can be assigned."* He alludes chiefly to an extrication of air in the uterus, which we shall have occasion to notice in our next species.

Opinion supported by facts,

In concurrence with these remarks it may, also, be observed, that some persons are said to have a power of producing ventricular distentions voluntarily, which it is difficult to account for except by a voluntary power of secreting air for this purpose, or forcing it down the esophagus,

and the opinion of other pathologists.

which will be still less readily allowed. Morgagni† and other writers have hence treated of this form of the disease as well as of that in which the flatus is lodged in the peritonæal sac: while others have contended that this is the only form, and that a peritonæal tympany has no real existence‡.

The question not fully settled: and hence the only known emphysema abdominis, that existing in the sac of the peritonæum.

If an idiopathic tympany of the stomach should ever be decidedly ascertained, its cure must be attempted by the remedies for flatus of any other kind: but at present the only disease we can fairly contemplate as entitled to the name of tympanites, or emphysema *abdominis*, notwithstanding the incredulity of some practitioners, is that in which the resonant swelling of the belly is produced by air collected in the sac of the peritonæum. It is unquestionably a rare disease, though we must contend, in the language of Dr. Cullen, that, "from several dissections it is unquestionable that such a disease has sometimes truly occurred": nor can we suppose such accurate and cautious pathologists as Heister§, Lieu-

* On the Animal Econom. p. 206. 4to. 1792.

† De Sed. et Caus. Morb. Ep. XXXVIII. Art. 23.—Collect. Soc. Med. Havn. II. p. 78.

‡ Litre, Mem. de l'Acad. des Sciences, 1713. p. 235.

§ Wahrnehmungen. I. Art. 18.

taud *, and Bell †, who have respectively given examples of it, to have been successively deceived upon the subject. Admitting it to be produced by secretion, its occasional causes are still very obscure. It has been said to follow upon jaundice, and morbid affections of other abdominal viscera, upon debility produced by fever; upon hysteria, violent passions or other emotions of the mind: and probably all these may have operated in different cases.

GEN. II. SPEC. II. Emphysema abdominis. Tympany. Even this a rare disease, but stated to have occurred by high authorities.

The ordinary natural cure seems to consist in an escape of the air from the umbilicus by an outlet produced by an abscess or ulceration of this protuberant organ, or a sudden and fortunate rupture of its integuments. Morgagni and several later writers ‡ give us well authenticated cases of an occurrence of the first of these, and Stoerck of both §. We are thus led by nature herself to try the effects of tapping, or making an artificial opening into the cavity of the abdomen in the case of wind-dropsy, as well as in that of water-dropsy: and here, from the protruded state of the umbilicus, the lancet may conveniently be introduced at this point. The belly should, at the time of the operation, be well swathed with a broad girth, which may be tightened at option, and should be kept as tight as the patient can bear it, as well for the purpose of general support as for that of expelling the air within, and preventing the entrance of air from without.

Ordinary natural cure an escape of the air by an accidental outlet which has occurred in various ways. Hence tapping useful, and the umbilicus may be punctured. Belly at the time to be swathed.

Van Swieten dissuaded his pupils from this operation ‖; and Cembalusier ¶, and a few others have since asserted that it does not answer. But in most of these cases we have reason to believe that the seat of the disease was mistaken, and that the flatulency existed in the intestinal canal rather than in the peritonæal sac.

Operation opposed by Van Swieten and others as not answering: but probably the seat of the disease mistaken in the cases referred to.

Antecedently, however, to the operation of the paracentesis, we may try the effect of sending shocks of the

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* Hist. Anat. v. p. 432. † On Ulcers and Tumours. Vol. II.
‡ Guisard, Pratique de Chirurgie. Tom. I. p. 134.
§ Ann. Med. II. pp. 190, 193, 194. ‖ Ad Sect. 1251.
¶ Pneumatopathol. p. 503.—Dusseau, Journ. de Med. 1779.

GEN. II. SPEC. II. Emphysema abdominis. Tympany. Shocks of electricity, cold fomentations, pounded ice, and gelid drinks.

electric aura through the abdomen. Cold fomentations, moreover, or even pounded ice may be applied externally, and gelid drinks, reduced nearly to the freezing point, be swallowed copiously at the same time. This plan is said to have answered occasionally *. And it is obvious that a tonic regimen, with free exercise, and particularly equitation, and, where it can be had recourse to, sea-bathing, should be entered upon as soon as the tympany is dispersed.

Complicated case of abdominal inflation, but apparently not a real tympany, related by Monro.

There is a singular case of flatulent distention inserted in the Edinburgh Medical Essays, by Professor Monro, which is called a tympany, but does not seem to have been exterior to the intestinal canal; and hence, if a tympany at all, must have been produced by a secretion of air into the stomach or bowels, as conjectured by Mr. J. Hunter. The patient was a young woman aged twenty-two. The inflation continued for at least three months, the belly being sometimes so extremely distended as to endanger its bursting, and sometimes considerably detumefied, at which last period a variety of unequal and protuberant balls were felt all over the abdomen, and seemed to indicate so many intestinal constrictions. The patient's appetite continued good, she was very costive, and menstruated only at intervals of several months. She was at length attacked with borborygmi, and a day or two afterwards had such explosions of wind ἄνω καὶ κάτω, that none of the other patients would remain in the same room, and hardly on the same floor with her. From this time she recovered gradually †.

* Theden, N. Bemerkungen und Erfahrungen, II. p. 251.

† Edin. Med. Essays. Vol. I. Art. XXXI.

SPECIES III.

EMPHYSEMA UTERI.

Inflation of the Womb.

LIGHT, TENSE, CIRCUMSCRIBED PROTUBERANCE IN THE HYPOGASTRIUM; OBSCURELY SONOROUS; WIND OCCASIONALLY DISCHARGED THROUGH THE MOUTH OF THE UTERUS.

Gen. II. Spec. III.

The physometra of authors.

An unfrequent complaint, and hence denied by some writers.

THIS is the physometra of Sauvages and later nosologists. Like the last species, it is by no means a frequent complaint, and not easy to be accounted for except upon the principle of a secretion of air; and hence the existence of this species as well as of the last has been denied by several writers who do not happen to have met with examples of it. The description given of it is somewhat obscure in most of the pathologists, but there seems, upon the whole, sufficient reason for admitting it into the list of morbid affections. "It has been said", observes Dr. Denman, "that wind may be collected and retained in the cavity of the uterus till it is distended in such a manner as to resemble pregnancy, and to produce its usual symptoms; and that by a sudden eruption of the wind, the tumefaction of the abdomen has been removed, and the patient immediately reduced to her proper size. Of this complaint I have never seen an example: but many cases have occurred to me of temporary explosions of wind from the uterus which there was no power of restraining."*

Description by Denman.

History of the disease accurately examined into by Hunter.

The uterus is one of those organs referred to under our last species, as supposed by Mr. John Hunter to have a power of secreting or separating air from the blood: and as he has examined the subject with critical accuracy in direct reference to the present complaint, his remarks are

* Introduction to the Practice of Midwifery. Chap. III. Sect. X.

GEN. II. SPEC. III. Emphysema uteri. Inflation of the womb.

particularly entitled to our attention. "I have been informed", says he, "of persons who have had air in the uterus or vagina without having been sensible of it but by its escaping from them without their being able to prevent it: and who, from this circumstance, have been kept in constant alarm lest it should make a noise in its passage, having no power to retard it, as when it is contained in the rectum. The fact being so extraordinary, made me somewhat incredulous; but rendered me more inquisitive in the hope of being enabled to ascertain and account for it: and those of whom I have been led to inquire, have always made the natural distinction between air passing from the vagina and by the anus: that from the anus they feel and can retain, but that in the vagina they cannot; nor are they aware of it till it passes. A woman, whom I attended with Sir John Pringle, informed us of this fact, but mentioned it only as a disagreeable thing. I was anxious to determine if there were any communication between the vagina and rectum, and was allowed to examine, but discovered nothing uncommon in the structure of these parts. She died some time after; and being permitted to open the body I found no disease either in the vagina or the uterus. Since that time I have had opportunities of inquiring of a number of women concerning this circumstance, and by three or four have been informed of the same fact, with all the circumstances above mentioned."*

By what means the air becomes pent up. By spasm, or a coagulum of blood, or other viscous material seated at the mouth of the womb.

The only difficulty in the case is the means by which air can thus become accumulated in the cavity of the uterus; for admitting this fact, of which there can no longer, I should think, be any doubt, we can easily conceive a distention to the utmost power of the organ in consequence of an obstruction of the mouth of the womb from spasm, a coagulum of blood, or any other viscid material. And hence, in all the cases of this disease which have descended to us, we find such a closure described as existing whenever the organ has been examined.

* Animal Economy, p. 406. 4to. 1792.

Thus, in the instance related by Eisenmenger *, we are told that the uterus was completely impervious; and a like account is given of a similar instance recorded in the Ephemera of Natural Curiosities. Palfin † gives a case in which the obstruction proceeded from an hydatid cyst that had fixed at the mouth of the uterus, and Fernelius ‡ another in which the obstruction, and consequently the inflation, returned periodically. Dr. Denman intimates that this affection is sometimes accompanied with spasmodic pains, resembling those of labour; and the same remark will apply to dropsy of the womb which so much resembles it. The fact is that the uterus, when once enlarged by whatever means, and stimulated, has a natural tendency to run into a series of expulsory exertions in order to free itself from its burthen, and to excite all the surrounding muscles into the same train of action; and hence, natural labour, false conception, uterine dropsy and inflation produce the same effect, though, perhaps, in different degrees.

GEN. II. SPEC. III. Emphysema uteri. Inflation of the womb. Illustrated. Pains, simulating those of labour, how accounted for.

Emphysemas, like dropsies, are, in all cases, disorders of debility: and hence the mode of treatment in the disease before us is obvious. As an occasional discharge of wind from the vagina affords temporary ease, we should take a hint from this effect: and endeavour, first, to evacuate the confined air entirely, by a canula introduced into the os tincæ; and secondly, to invigorate the weakened organ by the use of some tonic injection, as a solution of catechu, alum, white vitriol, or diluted port wine.

Mode of treatment.

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* Collect. Historia fœtûs Mussi-pontani, &c.

† Description des parties de la femme qui servent à la generation. Leid. 1708.

‡ Patholog. Lib. IV. Cap. XV.

GENUS III.

PARURIA.

Mismicturition.

MORBID SECRETION OR DISCHARGE OF URINE.

Gen. III. Origin of generic term.

THE term PARURIA is a Greek derivation from παρὰ, perperam, and οὐρέω, "mingo". The genus is intended to include the ischuria, dysuria, pyuria, enuresis, diabetes,

Range of the division.

and several other divisions and subdivisions of authors, which, like the different species of the preceding genus, lie scattered, in most of the nosologies through widely different parts of the general arrangement. Thus, in Cullen, diabetes occurs in the second class of his system; enuresis in the fourth order of his fourth class; and ischuria, and dysuria, in the fifth order of the same class. All these, however, form a natural group; and several of them have characters scarcely diversified enough for

Dysuria, why not employed.

distinct species, instead of forming distinct genera. DYSURIA might have been employed instead of PARURIA, as a generic term for the whole; but as it has been usually limited to the third species in the present arrangement, it has been thought better to propose a new term than to run the risk of confusion by retaining the old term in a new sense.

The species that justly belong to the present genus appear to be the following:

1.	PARURIA INOPS.	DESTITUTION OF URINE.
2.	——— RETENTIONIS.	STOPPAGE OF URINE.
3.	——— STILLATITIA.	STRANGURY.
4.	——— MELLITA.	SACCHARINE URINE.
5.	——— INCONTINENS.	INCONTINENCE OF URINE.
6.	——— INCOCTA.	UNASSIMILATED URINE.
7.	——— ERRATICA.	ERRATIC URINE.

Gen. III. Paruria. Mismicturition. General character of the species.

From this group of family diseases we may perceive that the urine is sometimes deranged in its quantity, sometimes in its quality, and sometimes in its outlet: and that in its quality it is deranged in two ways, by being made a medium for foreign materials, and by being imperfectly elaborated. The most important principle which it seems to carry off from the constitution is the urea or that of the uric acid: and it has been ingeniously remarked by M. Berard, in his Analysis of Animal Substances, "That, as this is the most azotised of all the animal principles, the secretion of urine appears to have for its object a separation of the excess of azote from the blood, as respiration separates from it the excess of carbone."

SPECIES I.

PARURIA INOPS.

Destitution of Urine.

URINE UNSECRETED BY THE KIDNEYS: NO DESIRE TO MAKE WATER, NOR SENSE OF FULNESS IN ANY PART OF THE URINARY TRACK.

Gen. III. Spec. I. Occurs from renal inflammation. How differs idiopathically under various forms. Sometimes from transferred gout.

A DEFICIENT secretion of urine is often a result of renal inflammation, in which case, however, there is necessarily a considerable degree of pain and tenderness in the lumbar region. It sometimes proceeds from transferred gout, of which Mr. Howship relates a striking instance in a case that occurred to Mr. Heaviside. In this case also there is usually great pain in the loins: a symptom which was very prominent in the exemplification now alluded to. The gout disappeared from the foot suddenly on walking home at night in the cold. The patient, a general officer, made little water through the night, less the ensuing day, and none the day after.

GEN. III. SPEC. I. Paruria inops. Destitution of urine.

The catheter was then passed, and the bladder was found empty *. But the present species occurs occasionally as an idiopathic affection, sometimes followed rapidly by great danger to the general fabric, sometimes assuming a chronic form, and running on for a considerable period of time without danger, and sometimes existing as a constitutional affection coeval with the birth of the individual †.

No urine secreted apparently for six weeks. Twenty-two weeks. No urine passed from birth.

Dr. Parr relates a case that occurred in his own practice in which no urine was apparently secreted for six weeks ‡, and Haller gives a similar case that lasted twenty-two weeks §. In the Philosophical Transactions ‖ we meet with various instances of a similar deficiency; among the most singular of which is the case of a youth of seventeen years of age described by Dr. Richardson, who had never made water from his birth, nor had felt the least uneasiness on this account, being healthy, vigorous and active.

Deficiency accounted for by an increased discharge from other outlets.

Let it not be supposed, however, that so important a recrement as the urine is can have its constituent principles remain behind, and load the blood without danger. The outlet at which these are separated and discharged is not always manifest, and hence they sometimes appear not to be separated and discharged at all; though if the state of the patient be critically examined into by an accurate pathologist, the vicarious channel will generally be detected, and most of the cases that must at present range under the species before us, would be transferred to that of paruria *erratica*.

Skin and bowels the most common substituted emunctories.

The two most common emunctories that supply the place of the kidneys are the skin and the bowels. In Dr. Parr's case, he states that there was no vicarious evacuation, except a profuse sweat for a day or two, and

* Practical Treatise on the Symptoms, Causes, &c. of some of the most Important Complaints that affect the secretion and excretion of the Urine. Part I. Ch. I. Sect. II.

† See Spec. VII. of the present Genus, P. *erratica*.

‡ Dict. in verb. Ischuria. § Bibl. Med. Pr. II. p. 206.

‖ Vol. XXVIII. year 1783.

he adds that there was no suspicion of imposture, as the patient was in a hospital and constantly watched. But we have no account of the state of the bowels. In Dr. Richardson's case of a natural destitution of urine, the patient is admitted to have laboured under an habitual diarrhœa, though with little uneasiness, and the discharge of the urinary elements is very correctly ascribed to the intestinal flux.

Effects of a retention of urine. Stupor of the brain: accounted for.

The effects that result from a retention of the urinary elements in the system, are a loss of energy and a growing torpitude in every function, proving that the sensorium is directly debilitated, and rendered incapable of secreting its proper fluid. It is, hence, to be expected that the brain should evince torpitude in a greater degree than any other organ, and become oppressed and comatose, as though in a state of apoplexy. Nor is it difficult to account for these effects, since they naturally follow from having the blood surcharged with that excess of azote which, as we have just observed, it appears to be the office of the urine to carry off. The destructive power of azotic gass to animal life is known to every one, as is also its further power of increasing the coagulability of the blood.

Illustrated from Halford.

I do not know, however, that the great and pressing danger of having the constituent principles of the urine thrown back into the blood has been distinctly pointed out by any physician before the appearance of Sir Henry Halford's valuable article in a late volume of the Medical Transactions, which contains the following interesting case: "A very corpulent robust farmer, of about fifty-five years of age, was seized with a rigor which induced him to send for his apothecary. He had not made water, it appeared, for twenty-four hours; but there was no pain, no sense of weight in the loins, no distention in any part of the abdomen, and therefore no alarm was taken till the following morning when it was thought proper to ascertain whether there was any water in the bladder, by the introduction of the catheter; and none was found. I was then called, and another inquiry was made some

Gen. III. Spec. I. Paruria inops. Destitution of urine.

few hours afterwards, by one of the most experienced surgeons in London, whether the bladder contained any urine or not, when it appeared clearly that there was none. The patient sat up in bed and conversed as usual, complaining of some nausea, but of nothing material in his own view; and I remember that his friends expressed their surprise that so much importance should be attached to so little apparent illness. The patient's pulse was somewhat slower than usual, and sometimes he was heavy and oppressed. I ventured to state that if we should not succeed in making the kidneys act, the patient would soon become comatose and would probably die the following night; for this was the course of the malady in every other instance which I had seen. It happened so; he died in thirty hours after this, in a state of stupefaction."*

Additional illustration.

To this short history, Sir Henry has added the following remarks which are of too much importance to be omitted. "All the patients who have fallen under my care were fat corpulent men between fifty and sixty years of age: and in three of them there was observed a strong urinous smell in the perspiration twenty-four hours before death"; evidently proving that in these cases the instinctive or remedial power of nature, aided by the constitutional vigour of the respective patients, was endeavouring to convert the exhalants of the skin into a substitute for the palsied kidneys, but was not able completely to succeed.

Remedial process.

In attempting a cure of paruria *inops* we ought, in the first instance, whatever be its cause, to take a hint from the light of nature which is thus thrown upon us: and, as the excretories of the skin and of the kidneys are so perpetually assisting each other in almost every way,

Diaphoretics.

excite the former by active diaphoretics to take upon themselves for a time the office of the latter, and carry off the urea that should be discharged by the kidneys.

Diuretics.

We should next endeavour to restore the kidneys to their natural action by gentle stimulants or diuretics, as

* Med. Trans. Vol. VI. p. 410.

the alliaceous and siliquose plants, especially horse-radish and mustard, the aromatic resins and balsams, especially those of turpentine, copaiba, and the essential oil of juniper. Digitalis is of little avail, and in idiopathic diseases of the kidneys does not often exhibit a diuretic effect. If given at all it should be in conjunction with tincture of cantharides, or the spirit of nitric ether.

GEN. III. SPEC. I. Paruria inops. Destitution of urine. Treatment.

Stimulants may, at the same time, be applied externally, as the hot-bath, or strokes of the electric or voltaic fluid passed through the loins; to which may succeed rubefacients and blisters.

Stimulants.

In the mean while the alvine canal should be gently excited by neutral salts; and juniper-tea, broom-tea, or imperial, may alternately form the common drink. The juice of the birch tree (betula *alba*) will often, however, prove a better diuretic than any of these. It is easily obtained by wounding the trunk, and when fresh is a sweetish and limpid fluid, in its concrete state affording a brownish manna. It has the advantage of being slightly aperient as well as powerfully diuretic. From its stimulating the intestines it was at one time supposed to be a good vermifuge, and to have various other properties of which, in the present day, we know nothing: whence it has unjustly fallen into discredit even for properties to which it has a fair claim.

Aperients.

Diuretic apozems.

SPECIES II.

PARURIA RETENTIONIS.

Stoppage of Urine.

URINE TOTALLY OBSTRUCTED IN ITS FLOW: WITH A SENSE OF WEIGHT OR UNEASINESS IN SOME PART OF THE URINARY TRACK.

GEN. III. SPEC. II. The ischuria of many authors. How distinguished from the preceding species.

THIS is the ischuria of many writers, and though, like the preceding species, it is equally without a flow of urine, it differs very widely from it in other circumstances. In paruria *inops* the excretories of the kidneys are inactive, and, consequently, no urine is produced. In the species before us the secernents possess an adequate power, but the secretion is obstructed in its passage. And, as it may be obstructed in different organs and in numerous ways in each organ, we have the following varieties:

α Renalis. Renal stoppage of urine.	Pain and sense of weight in the region of the kidneys, without any swelling in the hypogastrium.
β Ureterica. Ureteric stoppage of urine.	With pain or sense of weight in the region of the ureters.
γ Vesicalis. Vesical stoppage of urine.	With protuberance in the hypogastrium; frequent desire to make water; and pain at the neck of the bladder.
δ Urethralis. Urethral stoppage of urine.	With protuberance in the hypogastrium; frequent desire to make water; and a sense of obstruction in the urethra, resisting the introduction of a catheter.

Gen. III. Spec. II. α P. retentionis renalis.

OBSTRUCTION OF URINE may take place IN THE KIDNEYS from a variety of causes, as spasm, calculous concretions, inflammation or abscess; and the tumour or swelling which occurs in any of these states, may be so considerable as to prevent the fluid from flowing into the pelvis of the kidneys as it becomes secreted by the tubules, or out of the pelvis when it has collected there.

Renal stoppage of urine. Causes.

Progress of the disease.

The kidneys, however, lie so deep, and from their minuteness are so completely buried in the loins, that the intumescence which produces the obstruction is often imperceptible to the eye, or even to the touch. At times, however, the organ becomes wonderfully augmented as the process of inflammation proceeds. Cabrolius gives us the history of a purulent kidney that weighed fourteen pounds *. And where the enlargement is accompanied with but little inflammation, proceeds gradually, and does not enter into a suppurative state, the organ not unfrequently becomes much more enormous, and has sometimes been found to weigh from thirty-five to forty pounds †.

Sometimes suppurates.

Sometimes becomes parabysmic. Sometimes wastes away.

In this condition there is no difficulty in conceiving a total obstruction to the flow of the urine even when elaborated in sufficient abundance. But the kidney, on the contrary, sometimes wastes away, instead of enlarges, and this so much as to become a shrivelled sack, and not exceed a drachm in weight; and as the sinus of the kidney contracts with its body, the organ at its extreme point is sometimes found imperforate: and hence how small soever may be the quantity of fluid which in this morbid condition may be separated from the blood, none whatever can pass into the ureter; and if both the kidneys concur in the same emaciation, this also must form as effectual a cause of the disease before us as any other.

β P. retentionis ureterica. Ureteric stoppage of urine. Causes the same as in the preceding variety.

When the STOPPAGE OF URINE exists in the URETERS, the causes may be as numerous and nearly of the same kind as when the kidneys are at fault: for here also we

* Cabrol. Observ. p. 28.

† Commerc. Liter. Nor. 1731. p. 32. 1737. p. 326.

Gen. III. Spec. II.

occasionally meet with calculous concretions, inflammation, and spasm: to which we may add grumous blood, viscid mucus, and a closed orifice in consequence of ulceration.

γ P. retentionis vesicalis. Vesical stoppage of urine. Causes.

VESICAL RETENTION OF URINE is produced by inflammation, pressure upon the neck of the bladder, irritation, or paresis. Pressure upon the neck of the bladder may be occasioned by distention of the rectum from scybala, or other enterolithic concretions, flatus, inflammation, or piles; or by distention of the vagina from inflammation, or a lodgement of the menstrual flux in consequence of an imperforate hymen. Irritation may be excited by a calculus, or too long a voluntary retention of urine, as often happens on our being so closely impacted in large assemblies or public courts, or so powerfully arrested by the interest or eloquence of a subject discussed in such places, that we cannot consent to retire so soon as we ought: whence the sphincter of the bladder from being voluntarily, becomes at length spasmodically, constricted, and the urine cannot escape. It sometimes happens under the last circumstance that, from the pressure of the urine against the sides of the bladder, the absorbents are stimulated to an increased degree of action, and a considerable portion of the surplus is thus carried back into the vessels, and perhaps thrown off by perspiration, so that we are able to remain for a very long term of time after the bladder has become painful from over-distention.

Voluntary retention of urine. Bladder when full, sometimes relieved by absorption.

Atony of the bladder as a cause.

Atony or paralysis of the bladder by which its propulsive power is destroyed, is a frequent cause; whence, as Saviard has observed, it is often met with in paraplegia*: and, as Morand remarks, on injuries to the spine†. And hence, I have occasionally found it an attendant upon severe and long protracted attacks of lumbar rheumatism‡: as most practitioners have probably done on

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* Observ. Chirurgiques. † Vermischte Schriften, B. II.

‡ See also Snowden, in the London Medical Journal.

injuries to the kidneys, ureters, urethra, prostate gland, or penis. It is said, moreover, to be a result of repelled eruptions of various kinds, chiefly of scabies * and scalled head †; but it has not occurred to me from these causes; though I have witnessed it in infancy from the irritation of teething where dentition has been attended with difficulty.

Gen. III. Spec. II. γ P. retentionis vesicalis.

Vesical stoppage of urine.

Repelled eruptions.

Irritation of teething.

δ P. retentionis urethralis.

Urethral stoppage of urine.

Causes.

In URETHRAL RETENTION OF URINE, the causes do not essentially vary from those already noticed; such as inflammation, the lodgement of a calculus; viscid mucus, and grumous blood. To which are to be added the ligature of a strangulating phimosis; irritation from a blennorrhœa or clap; strictures; an ulceration of the urethra producing an opening into the scrotum, or rendering the canal altogether imperforate.

Danger from retained urine at all times two-fold.

There is always danger from a retention of urine when it has continued so long as to distend and prove painful to the bladder: and the danger is of two kinds, first, that of an inflammation of the distressed organ, and next, that of resorption, and a refluence of the urea, and other constituent parts of the urine, as noticed under the preceding species.

Retention has sometimes lasted long without evil: accounted for.

The retention, however, has occasionally continued for a considerable period without mischief. It has lasted from a week to a fortnight ‡. Marcellus Donatus gives a case of six months' standing §; and Paullini another of habitual retention ‖. But in all these an observant practitioner will perceive the two following accompaniments: firstly, a constitutional or superinduced hebetude of the muscular coat of the bladder so as to indispose it to inflammation; and secondly, a resorption of the urinary fluid, and its evacuation by some vicarious channel, as already remarked under paruria *inops*. We have there stated that the two most commonly substituted outlets are

* Morgagni, De Sed. et Caus. Morb. Ep. XLI. Art. 4.

† Nov. Act. Nat. Cur. Vol. V. Art. 68.

‡ Eph. Nat. Cur. passim. Cornar. Obs. N. 81. § Lib. IV. cap. 27, 28.

‖ Cent. II. Obs. 86.

Gen. III. Sect. II. γ P. retentionis urethralis.

the excretories of the bowels and of the skin. Dr. Percival gives an instance of the latter in which the perspirable matter was so much supersaturated with the ammoniacal salt of the effluent urine, as to crystallize on the surface of the body, and this to such an extent that the skin was covered all over with a white saline powder*. Sometimes it has been thrown out from the stomach intermixed with blood, in the form of a hæmatemesis†; and sometimes from the nostrils with the same intermixture in the form of an epistaxis‡. And where the absorbents of the bladder have been too torpid for action, it has regurgitated through the ureters into the pelvis of the kidneys, and been resumed by the absorbents of these organs instead of by those of the former§.

Urethral stoppage of urine.

Instance of vicarious discharge by skin:

by the stomach:

nostrils:

Quantity retained sometimes very considerable.

The quantity retained, and afterwards discharged, or found in the bladder on dissection, has often been very considerable. It has occasionally amounted to eight or nine pints: and there is a case given by M. Vildé in the Journal de Medicine, in which it equalled sixteen pints.

Medical process.

In all the varieties thus pointed out the mode of management must be regulated by the cause as far as we are able to ascertain it.

Treatment of renal stoppage of urine.

If we have reason to believe the suppression is strictly renal from the symptoms just adverted to, and particularly from ascertaining that there is no water in the bladder or ureters, in most cases, whether it proceeds from inflammation or stone, we shall do right to employ relaxants, and mild aperients: and, where the pain is violent, venesection succeeded by anodynes. But it sometimes happens that the obstruction is produced by a parabysmic enlargement or coacervation of the substance of the kidney without inflammation. If this should occur in both kidneys at the same time, which is rarely the case, we have little chance of success by any plan that

* Edin. Med. Comm. Vol. v. 437. † Act. Nat. Cur. III. Obs. 6.

‡ Eph. Nat. Cur. Dec. II. An. IV. Obs. 63.

§ Petit, Traité, &c. Œuvres Posthumes, Tom. III. p. 2. See also Sp. VII. of the present genus, p. *erratica*.

can be laid down. If it be confined to one, the sound kidney will often become a substitute for the diseased, and perform double duty; and we may here attempt a resolution of the enlargement by minute doses of mercury continued for some weeks, unless salivation should ensue, and render it necessary to intermit our practice. A mercurial plaster with ammoniacum should also be worn constantly over the region of the affected organ.

GEN. III. SPEC. II. Paruria retentionis. Stoppage of urine.

The same plan must be pursued if we have reason to suspect the obstruction is confined to the ureters. The passage of a calculus is the chief cause of this variety of retained urine: and, independently of the sense of pain and weight in the region of the ureters which an impacted calculus produces, we have commonly also a feeling of numbness in either leg, and a retraction of one of the testicles in men, as the calculus in its passage presses upon the nerves which descend from the spermatic vessels. Opium and relaxants are here the chief, if not the only, means we can rationally employ; though the ononis *spicata*, or rest-harrow of our fields, is said, both in the form of powder, and of decoction, to be useful in this and various other diseases of the bladder accompanied with severe pain: on which account it holds a place in the Materia Medica of Bergius. The asplenium *Ceterach* and athamanta *Oreoselinum*, or mountain-parsley were formerly in vogue for the same purpose, but seem to be of feeble efficacy. The seeds of the athamanta cretensis or wild-carrot, had a wider and better founded fame, both as a diuretic and lithontriptic. Dr. Cullen employed them for the latter purpose but without success. The suppression is seldom total; for the opposite ureter is rarely so much affected by sympathy as to be spasmodically contracted, and equally to oppose the flow of the urine.

Treatment of ureteric stoppage of urine.

The most common variety of this disease is that of VESICAL retention, or a retention of the water in the bladder. This is usually produced by inflammation or spasm by which the sphincter of the bladder becomes contracted, and rigidly closed. Inflammation is to be

Treatment of vesical stoppage of urine.

GEN. III. SPEC. II. Paruria retentionis.

relieved by the ordinary means; and, in addition to these, by anodyne clysters, and fomentations, a warm-bath, warm liniments, especially of camphor, or essential oil of turpentine, and blisters to the perinæum. Spasm is excited by various causes: a stone in the bladder will do it, an ulcer about the neck of the bladder will do it, as will also too long a voluntary retention of urine. Spasm is for the most part to be treated, and will in most cases be subdued, by the method just proposed for inflammation; to which we may add camphor and opium by the mouth, and bladders of warm water applied to the pubes and perinæum, or, which is better, the warm-bath itself. Camphor has the double advantage of being a sedative as well as an active diuretic; but combined with opium we obtain a much more powerful medicine than either affords when employed singly. If the retention proceed from Spanish flies camphor alone will often answer; though in this case it is far better to combine with it mucilaginous diluents, as gum-arabic dissolved in barley water. Several of the terebinthinate oils have also been employed with great advantage, as the oil of juniper; the balsamum carpathicum, as it was called by C. Ab Hortis who first introduced it into practice, and recommended it for a multitude of other complaints as well; concerning which there was at one time a great secret, but which is, in fact, nothing more than an essential oil very carefully distilled from the fresh cones of the trees which yield the common turpentine; and the balsamum hungaricum which is an exudation from the tops of the pinus silvestris, and proves sudorific as well as diuretic. Another remedy, of early origin, and which has preserved its reputation to our own day, is the dandelion, the leontodon *Taraxacum*, of Linnæus. It was at one time regarded as a panacea, and prescribed for almost every disease by which the system is invaded, as gout, jaundice, hypochondrias, dropsy, consumption, paralysmas of every species, as well as gravel and other diseases of the bladder: and was equally employed in its roots, stalks, and leaves. It is now chiefly used as a deobstruent;

Stoppage of urine.

Camphor.

Mucilaginous diluents.

Terebinthinate oils.

Taraxacum.

but it possesses unquestionably diuretic powers, and hence, indeed, its vulgar name of piss-a-bed. Gen. III. Spec. II. Paruria retentionis.

If the joint use of these means should fail, the water is usually evacuated by the introduction of a bougie or catheter, though the irritation is sometimes increased by the use of these instruments; and the spasm or the thickening at the prostate or about the neck of the bladder is often so considerable, as to prevent an introduction of even the smallest of them. Wherever an instrument of this kind can be introduced, by far the most effective and convenient will be found the urinary siphon already described in treating of inflammation of the bladder*. And this instrument may be of still further and very important use as a mean of throwing tonic or stimulant injections into the bladder, whenever this organ is incapable of contraction from debility or a paralytic affection. Stoppage of urine. Treatment. Bougie to be employed with caution.

If, however, this instrument should not succeed, if the inflammation should increase, and the distress be alarming, nothing remains but to puncture the bladder, either above the pubes, in the perinæum, laterally, or posteriorly through the rectum, for the operation has been performed in all these ways and each has had its advocates. Puncture of the bladder when necessary.

The URETHRAL retention, as already pointed out, arises also from inflammation, which is to be treated in the ordinary way; or from a calculus or a stricture; both which are best removed by the application of a bougie. In the last case the bougie, if it pass without much pain, should be continued daily, and progressively enlarged in its size. It has often been employed with a tip of lunar or alkaline caustic: and in many instances with perfect success: but very great caution is requisite in the use of a caustic bougie; and even in the hands of the most skilful it has sometimes proved highly mischievous. When a simple bougie is employed, Ferrand † advises that, if the water do not flow immediately, it should be re-introduced and left in the urethra; and I have myself advised such a re- Treatment of urethral stoppage of urine. Bougie tipped with caustic requires considerable circumspection.

* Cl. III. Ord. II. Gen. VII. Spec. XVI.

† Biogny Zod. Ann. 1681.

Gen. III. Spec. II. Paruria retentionis. Stoppage of urine.

tention of the bougie-catheter through an entire night with considerable advantage; for the water which would not flow at first has gradually trickled, and given some relief to the over distended bladder, which has hereby progressively recovered its tone and propulsive power; so that the water before morning has been propelled in a stream. But this is a plan only to be pursued where the organ has too little instead of too much irritability, and consequently where there is no danger of inflammation.

Simple bougie may remain in the urethra for a night, where the bladder has little irritability.

SPECIES III.

PARURIA STILLATITIA.

Strangury.

PAINFUL AND STILLATITIOUS EMISSION OF URINE.

Gen. III. Spec. III. Dysuria of Sauvages and others.

This is the dysuria of Sauvages and later writers. In the preceding species there is an entire stoppage of the urine; in the present it flows, but with pain and by drops. Several of the causes are those of paruria *retentionis*; but others are peculiar to the species itself; and, as they are accompanied with some diversity in the symptoms, they lay a foundation for the following varieties:

α Spasmodica.	Spasmodic strangury.
β Ardens.	Scalding strangury.
γ Callosa.	Callous strangury.
δ Mucosa.	Mucous strangury.
ε Helminthica.	Vermiculous strangury.
ζ Polyposa.	Polypose strangury.

α P. stillatitia spasmodica. Spasmodic strangury.

The FIRST VARIETY is characterised by a spasmodic constriction of the sphincter, or some other part of the urinary canal, catenating with spasmodic action in some adjoining part. The spasmodic actions of which this

variety is a concomitant are chiefly those of hysteria, colic, and spasm in the kidneys. It is hence a secondary affection, and the cure must depend on curing the diseases which have occasioned it. Opium and the digitalis will often afford speedy relief when given in combination.

Gen. III. Spec. III. α P. stillatitia spasmodica. Spasmodic strangury. Mostly a sympathetic affection.

In the SECOND VARIETY there is also a spasmodic constriction, but of a different kind, and making it more of a primary affection; whence Sauvages and others have distinguished it by the name of dysuria *primaria*. It is excited by an external or internal use of various stimulants as acrid foods, or cantharides taken internally; and is accompanied with a sense of scalding as the urine is discharged.

β P. stillatitia ardens. Scalding dysury. Dysuria primaria of Sauvages. Exciting causes.

This is also a frequent result of blisters: and to avoid it in this case the patient should be always advised to drink freely of warm diluents in a mucilaginous form. Gum-arabic, marsh-mallows root, the jelly of the orchis or salep, infusion of quince-seed, lint-seed, or decoction of oatmeal or barley may be employed with equal advantage; for they do not essentially differ, and the only preference is to be given to that which affords the largest proportion of mucilage.

Treatment. Mucilaginous diluents.

Formerly the winter-cherry (physalis *Alkekengi*, Linn.) was in much repute, and was supposed to produce speedy relief*. It is unquestionably sedative and diuretic, and possesses these properties without heating or irritating: and seems to be worthy of farther trial. As a sedative, indeed, Hoffman employed it in hæmoptysis; and as a diuretic it has been still more generally made use of in dropsy. About five or six cherries or an ounce of the juice forms a dose: the pericarp is bitter, yet the fruit within possesses but little of this property, and has an acidulous and not unpleasant taste.

Alkekengi or winter-cherry.

Camphor has also been employed with great advantage for the same purpose, and acts on the same double principle of being a diuretic and a sedative. It is often found to act in the same manner when applied externally, and

Camphor.

* Manardus, Epist. Libr. XIII. N. 12.

GEN. III. SPEC. III. β P. stillatitia ardens. Scalding dysury. Treatment.

even when intermixed with the blister plaster itself, as though in some constitutions it possesses a specific influence over the bladder: upon which subject Dr. Perceval has penned the following note in his Commentary to the volume of Nosology; "In three instances blisters sprinkled with camphor were repeatedly applied without strangury, and as uniformly, when the camphor was omitted, with the concurrence of that symptom. I will not say that in all constitutions camphor will obviate strangury; nor in all constitutions will cantharides without camphor produce it."

Neutral aperients.

It will commonly be found useful, and sometimes absolutely necessary, in this variety, from whatever cause produced, to employ neutral aperients: and with them the means just recommended in cases of cantharides will rarely fail to succeed in most other cases. If not, the practitioner should have recourse to a decisive dose of opium.

γ P. stillatitia callosa. Callous strangury.

Strangury is also occasioned by a CALLOUS THICKENING of the membrane of the urethra producing a permanent stricture. Some interesting examples of this may be seen in Dr. Baillie's Plates of Morbid Anatomy*.

Most commonly seated in the bulb or prostate.

We have already had occasion to observe that the most common situation of a stricture is in its bulb or the prostate gland that lies immediately above†, though it may take place in any other part. M. Ducamp has invented an ingenious instrument for determining the exact point, consisting of a sound graduated into inches, half inches, and lines, which at once determines the distance of the obstruction from the orifice of the urethra. In five cases out of six however he found the obstruction seated not higher up than from four and a half to five and a half inches, and he is inclined to think that this is rather higher than occurs in general‡, which is contrary to the ordinary calculation in our own country. A stricture of this kind "consists", says Dr. Baillie, "of an

* Fascic. VIII. Pl. IV. V. † Vol. IV. Blenorrhœa Iuodes, p. 86.
‡ Traité des Rétentions d'Urine, &c. Paris 8vo. 1822.

approximation, for a short extent, of the sides of the canal to each other. Sometimes there is a mere line of approximation, and not uncommonly the sides of the urethra approach to each other for some considerable length, as, for instance, nearly an inch. The surface of the urethra at the stricture is often sound, but not unfrequently it is more or less thickened." It is this thickening which produces the variety of strangury before us. The sides of the urethra have sometimes approximated so nearly by its tumefaction that the stricture will only allow a bristle to pass through it: and hence ulcers are occasionally formed in the prostate gland, and fistulæ in the perinæum; and the cavity of the prostate is enlarged from distention, in consequence of the accumulation of urine behind the ulcer; of all which Dr. Baillie has also given examples.

Gen. III. Spec. III. γ P. stillatitia callosa. Callous strangury. Mischievous results.

Pain peculiarly distressing,

"The pain in micturition is sometimes peculiarly distressing; the limbs tremble, the face becomes flushed, and the fæces issue at the same time, so that the patient is obliged to pass his water in the position in which he goes to stool. M. Ducamp gives the case of a merchant labouring under this complaint, in whom the violent straining produced a large inguinal hernia: and refers to others who were afflicted with stricture of the rectum from the same cause*.

and has produced hernia.

Remedial process.

When the prostate, or urethra, is thus highly irritable, palliation only can be resorted to; but where the thickening is recent and there is little irritation, a skilful use of a bougie will sometimes afford temporary relief; after which, by gradually employing those of larger diameter, the stricture will often give way and the canal widen so as to allow the water to flow with considerable comfort. M. Ducamp objects to the use of bougies from the mischief they produce when unskilfully applied†. But the objection is too indiscriminate: and the plan is, after all, less adventurous than any application of caustic, although

Skilful use of a bougie often serviceable. Illustrated.

* Traité des Rétentions d'Urine, &c. Paris 8vo. 1822.

† Traité des Rétentions d'Urine, &c. ut suprà.

GEN. III. SPEC. III. γ. P. stillatitia callosa. Callous strangury. Treatment.

in the more cautious but more complicated way proposed by himself. I had lately a patient under my care, who was so grievously afflicted with this variety of strangury about six years before, from two distinct strictures, as never to make water otherwise than by drops: the smallest cat-gut bougie could with difficulty be made to pass through the thickened parts; and he was entirely debarred from going into company. By gradually accustoming himself to bougies of increasing diameter he can now bear the introduction of a moderately sized one with ease; the water flows freely, though in a small stream, and he is able to go into company and to travel without inconvenience. He still finds it necessary, however, that the bougie should occasionally be continued, and it is, I believe, introduced into the urethra every week or fortnight.

λ P. stillatitia mucosa. Mucous strangury.

In the variety which we have called MUCOUS STRANGURY, the urine is intermixed with a secretion of acrimonious mucus, of a whitish or greenish hue, which is frequently a sequel of gout, lues, or blennorrhœa. It is often, however, produced by cold, and in this last case forms the

Catarrhus vesicæ what.

catarrhus *vesicæ* of various authors: so denominated from its being conceived that the bladder and urethra are affected in the same manner as the nostrils in a coryza. The constriction therefore depends upon an excoriated or irritable state of the urethra, or neck of the bladder, and, at times, of the mucous membrane of the bladder itself*. And hence the warm-bath, or sitting in a bidet of warm water, is often of considerable service. Warm and diluent injections have also frequently been found, as well as diluent and demulcent drinks, of great advantage. A very severe case of this kind occurred not long since to the author, in a lady of the middle of life, who had about three months before suffered much from a laborious labour in which a dead child was brought into the world by the use of the single blade. The bladder, irritated in the course of the labour, long continued irregular in its action, but at length appeared to have recovered its tone. A sud-

Medical treatment.

Severe and striking exemplification.

* Tacheron. Recherches Anatomico-Pathologiques sur la Médecine Pratique. In loco.

den exposure to cold brought back the irritability, the mucous discharge was considerable, and the micturition so constant and painful, that for two nights in succession the patient evacuated the bladder or strove to evacuate it, nearly forty times each night. The plan above recommended was diligently pursued, and at night the body swathed with flannel wrung out in hot water, with an outer swathe of a towel. Forty drops of laudanum were given at bed-time and repeated doses of tincture of hyoscyamus in the day. On the third day the disease subsided, and vanished in the evening. If this variety continue long it is apt to produce an obstinate and very narrow stricture, of which ulceration and fistulæ in perinæo are frequent results.

Gen. III. Spec. III. β P. stillatitia mucosa. Mucous strangury.

Strangury is also sometimes accompanied with a DISCHARGE OF WORMS of a peculiar kind, and proceeds from the irritation they excite. Of this we have various instances in the Ephemerides of Natural Curiosities *, in some of which the worms were found in the bladder after death, and in others discharged by the urethra during life: and a like fact is alluded to by Dr. Frank, though he does not seem to have witnessed it himself †. They are described as of different forms in different cases, sometimes resembling the larves of insects: sometimes distinctly cucurbitinous, of the fasciola, fluke, or gourd-kind. Dr. Barry of Dublin has given us the case of a solitary worm discharged by the urethra of a man aged fifty, "above an inch in length, of the thickness of the smallest sort of eel, and not unlike it in shape, ending in a sharp-pointed tail." It was dead, but did not seem to have been dead long. The patient had for several years been in the habit of discharging urine mixed with blood, but unaccompanied with pain either in the bladder or urethra. During the whole of this time he had been feverish; and gradually lost his appetite, found his strength decay, and had become tabid and hectic; from all which he speedily recovered as

ε P. stillatitia helminthica. Vermiculous strangury. Worms differ in form in different cases. Sometimes solitary.

* Dec. I. Ann. IX. X. Obs. 113. Dec. II. Ann. I. Obs. 104. Ann. VI. Obs. 31. Dec. III. Ann. I. Obs. 88. Ann. II. Obs. 203.

† De Cur. Hom. Morb. Epit. Tom. V. p. 79.

Gen. III. Spec. III. ε P. stillatitia helminthica. Vermiculous strangury. Sometimes long or gregarious. Singular case of Demet.

soon as this cause of irritation was removed *. Mr. Demet has lately given a similar case, but of a more complicated kind. The patient was a man of fifty years of age who had through a great part of his life been subject to anomalous pains in the lumbar region, and abdomen, and in adolescence to a frequent nasal hemorrhage. One day, at the period now spoken of, after passing much blood by the urethra, he voided by the same channel, a round worm *fourteen inches in length, of the size of a goose-quill*; after which he found himself greatly relieved, and the hæmaturia ceased. In the course of three months this man passed by the same passage fifty worms apparently of the same species, but of different sizes. He had notice of their forth-coming by a sense of heat in the urinary canal, and a slight febrile excitement which went off as soon as the worms were ejected. They were uniformly dead when discharged †.

Illustrated from Lawrence in a singular case.

We have also an example of a like vermicule, highly gregarious, and of considerable length, in an interesting paper of Mr. Lawrence, inserted in the second volume of the Medico-Chirurgical Transactions. The patient was a female aged twenty-four, and had long laboured under a severe irritation of the bladder, which was ascribed to a calculus. She at length discharged three or four worms of a non-descript kind, and continued to discharge more, especially when their removal was aided by injections into the bladder, or the catheter had remained in the urethra for the night. The evacuation of these animals continued for at least a twelvemonth. Twenty-two were once passed at a time; and the whole number could not be less than from eight hundred to a thousand. A smaller kind was also occasionally evacuated. The larger were usually from four to six inches in length; one of them measured eight. For the most part they were discharged dead.

The subject is obscure, but it may be observed that the

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* Edin. Med. Ess. Vol. v. Part. II. Art. LXXII. p. 289.

† Dict. des Sciences Medicales. Art. Cas. Rares.

ova of various species of worms, and even worms themselves, are occasionally found in many animal fluids, and have been especially detected in the blood-vessels, where they have been hatched into grubs or vermicules, for the most part of an undecided character; though some, observed in the mesenteric arteries of asses, have been referred to the genus strongylus *. And in like manner Dr. Frank assures us, that he has found ascarides both in the bladder and kidneys of dogs, particularly in polypous concretions in these organs †. Dr. Barry supposes his isolated worm to have travelled in the form of an ovum as far as to the extremity of an exhaling artery opening into the bladder; to have found, in this place, a proper nidus and nourishment for the purpose of being hatched into a larve or grub, and of growing to the size it had assumed when thrown out of the urethra; and, in consequence of this progressive growth and the proportional dilatation of the vessel in which it was lodged, he accounts for the discharge of blood without pain. If a worm reach the bladder alive and full of eggs, we have no difficulty in accounting for a succession of progenies.

GEN. III. SPEC. III. ε P. Stillatitia helminthica. Vermiculous strangury. Explained analogically.

Strangury is also sometimes produced in consequence of the bladder or urethra, or both, being obstructed by the formation of a POLYPOUS EXCRESCENCE which has occasionally shot down to the external extremity.

ζ P. Stillatitia polyposa. Polypous strangury.

Dr. Baillie's Morbid Anatomy furnishes several examples of this variety; which, in most cases, is only to be radically cured by an extirpation of the substance which produces the obstruction ‡, wherever it can be laid hold of. When small, however, and in the form of caruncles, these excrescences have sometimes separated spontaneously, and been thrown out by the urethra with very great relief to the sufferer, and have been followed by a perfect cure §.

Only to be cured radically by extirpation, when it can be laid hold of. When small, has been sometimes spontaneously exfoliated.

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* Hodgson on the Diseases of Arteries.

† De Cur Hom. Morb. Epit. Tom. v. p. 76.

‡ Fascic. IX. Plate III.

§ Fabric. Hildan. Cent. IV. Obs. LIII. Art. Nat. Cur. Vol. I. Obs. XIII.

Gen. III. Spec. III. ζ P. Stillatitia polyposa. Polypous strangury. Singular case in illustration from Perceval.

Upon this variety my venerable friend Dr. Perceval has added the following note in his manuscript Commentary on the Nosology, from which the present work has been so often enriched: "It might not be amiss to insist on a case which sometimes deceives young practitioners: ischuria cum stranguria. A copious draining of urine took place for several days in a patient with a swelled belly. Death supervening, the bladder was found distended to an enormous bulk, and the parietes of the abdomen wasted. Two excrescences near the neck of the bladder internally had almost closed its outlet, and interfered with the action of the sphincter." Where the irritation is considerable these excrescences sometimes ulcerate, and form fungous sores, with great distress and gnawing pains that shoot into the hips and posterior muscles of the thighs, though the exact mischief cannot be ascertained till death; of which Mr. Bingham has given an example in his ingenious dissertation *.

Excrescences sometimes ulcerate.

SPECIES IV.

PARURIA MELLITA.

Saccharine Urine.

URINE DISCHARGED FREELY, FOR THE MOST PART PROFUSELY; OF A VIOLENT SMELL AND SWEET TASTE; WITH GREAT THIRST, AND GENERAL DEBILITY.

Gen. III. Spec. IV. Diabetes of authors. Term used in a loose sense formerly.

This is the diabetes, diabetes Anglicus, or diabetes mellitus of authors; from διαβήτης, importing "a siphon", or rather from διαβαίνω, "transeo." Diabetes among the Greek and Roman, and, indeed, among modern physicians till the time of Willis, imported simply a flux of urine, either crude or aqueous, for no distinction was made

* Practical Essay on the Diseases and Injuries of the Bladder, &c. by Robert Bingham, 1802.

between the two, and both were named indifferently diabetes, dipsacus from the accompanying thirst, urinary diarrhœa, urinal dropsy, and hyderus (ὕδερος), or water-flux *. The writers among the ancients who seem chiefly to have noticed it are Galen, Aretæus, and Trallian; and the reader who is desirous of knowing what they say, and is not in possession of the original authors, may turn to Dr. Latham's Treatise upon the disease † who has translated the whole with very great clearness and fidelity. The form of diabetes, to which we are now directing our attention, Galen describes as having a resemblance to lientery, from the rapidity with which the solids and fluids of the body seem to be converted into a crude and liquid mass, and hurried forward to the kidneys; and to canine appetite, from the voracity and thirst which are its peculiar symptoms. He supposes a high degree of appetency or irritation to exist in the substance of the kidneys, in consequence of which it attracts the matter of urine with great vehemence from the vena cava; and an equal degree of atony and relaxation to exist in its orifices or pores, so that the same matter flows off unchanged as soon as it reaches them ‡.

Gen. III. Gen. IV. Paruria mellita. Saccharine urine. importing a flux of crude or aqueous urine of any kind. Synonyms. Dipsacus. Hyderus, or water-flux. Treated of by Galen, Aretæus and Trallian. Description of Galen, as applicable to the present disease. Galen's view adopted by his successors:

This general view of the subject was adopted with a few additions by Aretæus, and without any by Trallian; and seems to have descended with little variation, as we have just observed, till the time of Willis, who first called the attention of practitioners to the curious and important fact that the urine of diabetic patients, seems in many cases, to contain a saccharine principle. These cases, however, were not, at that time, duly distinguished, and hence, in Sauvages, who was well acquainted with Willis's discovery, diabetes signifies equally an immoderate flux of urine from hysteria, gout, fever, spirituous potation, as

till the time of Willis, who first pointed out the existence of a saccharine principle. Yet no proper distinction was made by Sauvages and others.

* Galen. de Crisibus, Lib. I. Cap. XII.

† Facts and Opinions concerning Diabetes, 8vo. 1811.

‡ De Loc. Affect. Lib. VI. Cap. III. IV., compared with De Crisibus, Lib. I. Cap. III.

GEN. III. SPEC. IV. Paruria mellita. Saccharine urine.

well as urine combined with saccharine matter: though the only relation which the last has to the rest is that of its being *usually* secreted in a preternatural quantity: but as even this last quality, though mostly, is not always, the case, it should be distinguished by some other name than that of diabetes, and form a distinct division: or, if the name of diabetes be applied to it, it should be given to it exclusively. Dr. Young, who retains the name in the latter sense, and employs it as that of a genus, justly allows but one species to the genus, the diabetes *mellitus* of Cullen, and describes the diabetes *insipidus* under the genus and species of hyperuresis *aquosus*. The distinction indeed is so clear, and has been so generally admitted for nearly the last half century that it is wonderful Professor Frank, with all his fondness for generalization, should have turned to the erroneous view of the early writers and again confounded genuine diabetes with hyderus or water-flux, the enuresis of most writers. There is great doubt whether this last ever exists as an idiopathic affection. Cullen himself, indeed, candidly expresses the uncertainty of his mind upon the subject: "Almost all the cases of diabetes of late times," he observes, "exhibit saccharine urine, ita ut dubium sit, an alia diabetis idiopathicæ et permanentis species revera detur." If such be found it will probably be nothing more than a variety of the next species in the present arrangement, PARURIA INCONTINENS: while the honeyed diabetes or saccharine urine ought to be studied as a distinct affection.

How distinguished by Young: the diabetes insipidus of Cullen equivalent to his hyperuresis aquosus. Confused generalization of Frank.

Whether the last exists as an idiopathic affection.

Pathology involved in obscurity.

The pathology of this disease is still involved in a considerable degree of obscurity: for though anatomy has pointed out a few morbid changes that exist more or less extensively in the urinary or digestive organs, and chemistry has sufficiently explained to us the morbid character of the discharge, they have thrown less light upon its origin than could be wished for, and have hitherto led to no satisfactory opinion upon the subject. Even the seat of the disorder is, to the present hour, a point of contro-

Seat of the disorder a subject of discussion.

versy; and as its seat, together with the nature of its cause, can only be collected from its symptoms, we will first lay down its general history and afterwards glance at a few of the leading hypotheses which have been started in respect to its pathology.

GEN. III. SPEC. IV. Paruria mellita. Saccharine urine.

Saccharine or honeyed paruria is rarely, though sometimes *, found in early life, but is often a sequel to a life of intemperance, on which account it is occasionally connected with a morbid state of the liver. It makes its approach insidiously, and often arises to a considerable degree and exists for some weeks without being particularly attended to. If the urinary symptoms take the lead it is without the patient's noticing them, for the first morbid change he is sensible of is in the stomach. At this time, to adopt the description of Dr. Latham, "It is attended, for the most part with a very voracious appetite, and with an insatiable thirst; with a dry harsh skin, and clammy, not parched, but sometimes reddish tongue; and with a frequent excreation of very white saliva, not inspissated, but yet scarcely fluid. As the disease proceeds it is accompanied often with a hay-like scent or odour issuing from the body, with a similar sort of halitus exhaling from the lungs, and with a state of mind dubious and forgetful: the patient being dissatisfied, fretful, and distrusting, ever anxious indeed for relief, but wavering and unsteady in the means advised for the purpose of procuring it."†

Description of its origin.

In the mean time the kidneys discharge a fluid usually very limpid, though sometimes slightly tinged with green, like a diluted mixture of honey and water, and possessing a saccharine taste more or less powerful. The quantity, in a few rare instances, has been found not much increased beyond the ordinary flow, but for the most part the secretion is greatly augmented, and not unfrequently amounts to forty or upwards of forty pints in the course of a day and night‡.

Progress.

Urinary secretion sometimes only slightly increased, but often very much so.

* Latham's Facts and Opinions, p. 176.

† Facts and Opinions concerning Diabetes, &c. p. 1.

‡ Frank, De Cur. Hom. Morb. Epit. Tom. v. p. 44.

Gen. III. Spec. IV. Pyuria mellita. Saccharine urine.

The pulse varies in different individuals, but, for the most part, is quicker than in health; and not unfrequently there is a sense of weight or even acute pain in the loins occasionally spreading to the hypochondria, a symptom which Aretæus notices as one of the earliest that appears; the uneasiness extending still lower till, as the same writer remarks, a sympathetic smarting is felt at the extremity of the penis whenever the patient makes water.

Termination.

The flesh wastes rapidly; and, as the emaciation advances, "cramps", says Dr. Latham, "or spasms of the extremities sometimes supervene, the pulse is more quick and feeble, and the saliva more glutinous". And when the strength is almost exhausted in a still more advanced stage of the disease, the lower extremities often become edematous, and the skin cold and damp: the diabetic discharge is then frequently much diminished, and is sometimes even found to become more urinous for a few hours before death closes the distressing scene."

Occasional concomitants. Pulmonic affection.

A pulmonic affection occasionally accompanies or precedes the attack; Dr. Bardsley, indeed, affirms that he does not recollect a case that was entirely free from this symptom. And it is probably on this account, as also from the feverish state of the pulse, which by some writers has been supposed to partake of a hectic character, that by MM. Nicolas and Gueudeville the disease has been denominated *Phthisuria sucrée* *.

Costiveness sometimes very obstinate.

The state of the bowels is extremely variable, though there is commonly a troublesome costiveness; sometimes, indeed, so much so, that the feces are peculiarly hardened and scybalous; which is well described by a patient of Dr. Latham's, in a letter of consultation; "The heat of my body", says he, "I suppose arises from a most determined costiveness that I cannot find means to conquer, and which occasions me great pain and misery, frequently feeling an inclination without the ability of discharging: and when, after much difficulty, the excrement is ejected, it has almost

* Récherches et Expériences Médicales et Chimiques sur la Diabète sucrée, ou la Phthisie sucrée. 8vo. Paris, 1803.

the solidity of lead."* In a few instances the disease seems to be connected with family predisposition. Mr. Storer has noticed a case of this kind in his communication with Dr. Rollo; and M. Isenflamm has given the history of seven children of the same parents who fell victims to it in succession †.

Gen. III. Spec. IV. Paturia mellita. Saccharine urine. Sometimes connected with a family predisposition.

Professor Frank, who, during a practice of twenty years in Germany, met with but three cases of this complaint, though afterwards with seven in the course of eight years in Italy, adds to the preceding symptoms that the skin is scaly as well as arid ‡.

Skin arid and scaly.

The real nature of the fluid evacuated has been very sufficiently determined both in our own country and on the Continent by chemists of the first authority, who have concurrently ascertained that, whilst it is destitute of its proper animal salts, it is loaded with the new ingredient of saccharine matter.

Nature of the fluid evacuated: destitute of its proper salts; and loaded with saccharine matter.

Dr. Dobson from a pound of urine collected an ounce of saccharine substance; and Mr. Cruikshank, from thirty six ounces Troy, obtained, in like manner, by evaporation, not less than three ounces and a quarter: which, from the quantity discharged by the patient, would have amounted to not less than twenty-nine ounces every twenty-four hours. A patient, however, under Dr. Frank, but who was in the last stage of the disease, evacuated his urine in a much higher degree of concentration; while the general amount was not more than in a state of health, for from two pints the saccharine matter obtained weighed not less than six ounces §. Chevreul has shewn that by concentrating this morbid urine and setting it aside we may obtain a deposit of sugar in a crystallized state.

The last proved by experiments of Dobson and Cruikshank.

Frank.

The absence of animal salts has been ascertained not less satisfactorily. MM. Nicolas and Gueudeville showed,

Absence of animal salts proved by Nicholas and Gueudeville.

* Facts and Opinions, &c. p. 185.

† Versuch einiger practicher Anmerkungen über die Eingeweide, &c. Erlang. 1784.

‡ De Cur. Hom. Morb. Epit. Tom. v. p. 39. Mannh. 8vo. 1792.

§ Ubi supra, Tom. v. p. 47.

GEN. III. SPEC. IV. Paruria mellita. Saccharine urine.

by a series of experiments in 1802, that the saccharine urine contains no urea, nor uric or benzoic acid; that the phosphoric salts exist in a very small proportion: and that in consequence of its sugar it will enter into the vinous and acetous fermentation, and yield an alcohol of a disagreeable odour *.

Later experiments of Dupuytren and Thenard:

The same results have since been obtained by MM. Dupuytren and Thenard by experiments still more satisfactory. They also found an albuminous substance in the urine which is always discharged in a sensible form when the disease begins to take a favourable change, and is the constant harbinger of a return of the proper animal salts; for after having appeared for a little while it gradually diminishes and yields its place to the urea and uric acid.

of Henry.

In an excellent paper of Dr. Henry's inserted in the Transactions of the Medico-Chirurgical Society †, he appears to have arrived at many of the same conclusions though by a somewhat different process.

Results of dissection.

Dissection has also been had recourse to for collateral information on this complicated malady: but its researches have been less successful than those of the chemists.

Morbid state of kidneys as detected by Cruikshank.

The only organ in which any morbid structure has been clearly ascertained is the kidneys. Mr. Cruikshank affirms generally that the arteries of the kidneys are, on these occasions, preternaturally enlarged, particularly those of the cryptæ or minute glands which secrete the urine." ‡

The same as detected by Baillie.

And this state of inflammation or morbid activity is confirmed by Dr. Baillie in his 'Account of a case of diabetes with an examination of the appearances after death,' § in which he tells us that "The veins upon the surface were much fuller of blood than usual, putting on an arborescent appearance. When the substance of both kidneys was cut into it was observed to be every where much more crowded with blood-vessels than in a

* Récherches et Expériences, ut suprà citat.

† Transact. Vol. x.

‡ On the Lacteals and Lymphatics, p. 69.

§ Transactions of a Society for the Improvement of Medical and Chirurgical Knowledge, &c.

natural state, so as, in some parts, to approach to the appearance of inflammation. Both kidneys had the same degree of firmness to the touch as when healthy: but I think, were hardly so firm as kidneys usually are, the vessels of which are so much filled with blood. It is difficult to speak very accurately about nice differences in degrees of sensation unless they can be brought into immediate comparison. A very small quantity of a whitish fluid, a good deal resembling pus, was squeezed out from one or two infundibula in both kidneys, but there was no appearance of ulceration in either."

GEN. III. SPEC. IV. Paruria mellita. Saccharine urine.

These premises, taken conjointly or separately, according to the light in which they may be viewed by different persons, open an abundant field for speculation concerning the nature of the malady: and hence, an infinity of hypotheses have been offered of which the following are the chief:

Principal hypotheses more or less appealing to the preceding facts.

I. The disease is dependent upon a morbid action of the stomach, or some of the chylifacient viscera, which necessarily, therefore, constitute its seat.

II. The disease is dependent upon a dyscrasy or intemperament of the blood, produced by a morbid action of the assimilating powers.

III. The disease is dependent upon a retrograde motion of the lacteals, and is consequently seated in the lacteal vessels.

IV. The disease is dependent upon a morbid condition of the kidneys, and seated in these organs.

I. The first of these hypotheses, though not the most ancient, has been by far the most commonly received, and is, perhaps, the most prevalent in the present day. It is derived from observing the increased action which exists in the stomach, and probably also in the collatitious viscera, in conjunction with the untempered fluid which is discharged by the kidneys, whose morbid crasis is referred to these organs. But even here there has been much difficulty in determining which of the digestive viscera is principally at fault. Dr. Mead, having remarked that the disease is frequently to be traced amongst

I. Hypothesis of a morbid action of the stomach or chylifacient viscera. Scope of the argument.

Supported by Mead:

Gen. III. Spec. IV. Paruria mellita. Saccharine urine.

those who have lived intemperately, and particularly who have indulged in an excess of spirits and other fermented liquors, ascribed it to the liver, and the idea was very generally received in his day. Dr. Rollo has since, and certainly with more plausibility, fixed the seat of the disease in the stomach, and confined it to this organ: conceiving it to consist "in an increased action and secretion with a vitiation of the gastric fluid, and probably too active a state of the lacteal absorbents;—while the kidneys, and other parts of the system, as the head and skin, are only affected secondarily."

I. Hypothesis of a morbid action of the stomach or chylifacient viscera, and Rollo:

Objections.

According to this hypothesis the blood is formed imperfectly from the first, and the morbid change of animal salts for sugar is the work of the stomach or its auxiliary organs, which are immediately influenced by it. It is a strong if not a fatal objection to this view of the subject, that the blood before it reaches the kidneys, is found, upon the most accurate experiments to which it has hitherto been submitted, "to contain the salts of the blood, but no trace whatever of sugar." The experiments I allude to are those of Dr. Wollaston, and Dr. Marcet, detailed in the Philosophical Transactions*. Prior experiments had, indeed, been made under the superintendence of Dr. Rollo, which induced those engaged in them to conjecture that some small portion of sugar might exist in the blood; but these trials led to no definite conclusion, and did not satisfy the experimenters themselves. The results of Wollaston have since been confirmed by other experiments of Nicholas, Sorg, Thenard, and Bostock.

II. Hypothesis of a dyscrasy of the blood.

II. The second hypothesis, or that which regards the disease as dependant upon a dyscrasy or intemperament of the blood, produced by a morbid action of the assimilating powers, is of parallel date with the preceding, and has had the successive support of many of the ablest and most distinguished pathologists from its origin to our own day. It was first started by Dr. Willis and immediately followed upon his discovery of the saccharine

Started by Willis:

* Vol. ci. 1811, p. 96.

property of diabetic urine, who thus expresses his opinion of the seat and nature of the disease in his treatise upon this malady:—"Diabetes is rather an immediate affection of the blood than of the kidneys, and thence derives its origin; for the mass of the blood becomes, so to speak, melted down, and is too copiously dissolved into a state of serosity: which is sufficiently manifest from the prodigious increase of the quantity of urine which cannot arise from any other cause than from this solution and waste of blood." He admits, however, that the orifices of the kidneys are at this time peculiarly relaxed and patulous, in consequence of which the untempered fluid passes off with a greater ease and rapidity.

Gen. III. Spec. IV. Paruria mellita. Saccharine urine. II. Hypothesis of a dyscrasy of the blood,

This hypothesis of Willis was readily embraced by his distinguished contemporary Sydenham, who fortified himself in the same by observing that those who have long laboured under an intermittent, and have been unskilfully treated, and especially old persons, sometimes fall into a diabetes, from a crude or debilitated condition of the blood. And hence, he tells us in his letter to Dr. Brady, Regius Professor of Physic in the University of Cambridge, that "the curative indication must be completely directed towards invigorating and strengthening the blood, as well as restraining the preternatural flux of urine."

Supported by Sydenham:

Thus advanced and advocated by two of the brightest luminaries that have ever enlightened the medical world, it cannot be a matter of surprize that this opinion should have been extensively adopted. In truth it was espoused on the Continent as well as at home, and, in 1784, gave birth to M. Place's able dissertation at Göttingen *: and continued to be the prevailing opinion till the appearance of Dr. Rollo's work, to which we have just adverted; and even since the appearance of this work, it has been still warmly and ably maintained by Dr. Latham, who, while he pays all the homage to Dr. Rollo's labours and abilities to which they are entitled, and scrupulously adopts

and very generally adopted,

abroad as well as at home.

Advocated by Latham:

* Diss. de vera Diabetis causâ in defectû assimilationis quærenda. Goett. 1784.

GEN. III. SPEC. IV. Paruria mellita. Saccharine urine. II. Hypothesis of a dyscrasy of the blood.

the general principles of his practice, opposes his doctrine of a morbid condition of the stomach *, which, as well as the kidneys †, he believes to be perfectly sound in its action. "I must take leave", says Dr. Latham, "to differ in opinion most materially from Dr. Rollo, who seems to consider this most enormous appetite as such an evil in diabetes, as to endeavour, by every possible means, to repress it, having founded his theory principally upon the idea that on this action of the stomach depends the evolution of sugar with the whole train of consequent symptoms: whereas, I consider the appetite, however great it may be, and which I would never check by medicines, as a natural sensation, calling into its full exercise that organ through which the constant waste of the body must be directly supplied, and without which the patient must soon inevitably perish: and I look upon the more moderate appetite which takes place usually in a few days after a strict conformity to animal diet, as the surest sign of convalescence, inasmuch as I hold it in proof that the blood being thereby rendered firmer in its crasis, there is less disposition in it to be decomposed, and, consequently (as is the fact) that there must soon be a diminished discharge of nutritious matter from the kidneys."

who differs from Rollo in an essential point of pathology, though he accedes to his practice generally.

The objections to the preceding hypothesis, equally applicable to the present.

An opinion promulgated and maintained in succession by authorities so high, and names so deservedly dear to the HEALING ART, ought not to be lightly called in question: but it is as difficult to reconcile the present notion as the preceding with the existence of the ordinary salts and the non-existence of sugar in the blood of diabetic patients. Dr. Latham, however, has argued the point with great and elaborate ingenuity, and has endeavoured to show, by a train of reasoning which is worthy of attention, that the sugar, in respect to its elements, may exist in the blood, though the substance itself be not discoverable in it, being "so weakly and loosely oxygenated as to be again readily evolved by the secretory action of the kid-

* Facts and Observations, &c. p. 230. † Id. p. 116.

neys, not from any fault in the kidneys themselves, but from the regular and natural exercise of their function, in separating from the imperfect blood such matters as are not properly combined with it."*

Gen. III. Spec. IV. Paruria mellita. Saccharine urine.

III. A bold and plausible effort was made, between forty and fifty years ago, to get rid of the stumbling-block of the absence of sugar from the blood by showing that provided it were once formed by the digestive organs, there is no necessity for its travelling in this direction. This hypothesis was brought forward by that very acute and ingenious physiologist, Mr. Charles Darwin, in an essay presented to the Æsculapian Society of Edinburgh in 1778, that obtained for him an unanimous grant of the prize-medal for the year: an honour dearly earned, as almost immediately afterwards he fell a martyr to his indefatigable pursuits, while on the verge of graduating. In this essay he endeavoured to account for the disease of saccharine urine by a retrograde motion of the lymphatics of the kidneys. Having endeavoured to establish the general principle of a retrograde lymphatic action, he proceeds to remark, that all the branches of the lymphatic system have a certain sympathy with each other, insomuch that when one branch is stimulated into any unusual motion, some other branch has its motions either increased, or decreased, or inverted, at the same time: thus, when a man drinks a moderate quantity of vinous spirit, the whole system acts with more energy by concert with the stomach and intestines, as is seen from the glow on the skin, and the increase of strength and activity: but when, says he, a greater quantity of this inebriating material is drunk, at the same time that the lacteals are quickened in their power of absorbing it, the urinary branches of the absorbents which are connected with the lacteals by many anastomoses, have their motions inverted, and a large quantity of pale, unanimalized urine is hereby discharged. Where, continues Mr. Darwin, this ingurgitation of too much vinous spirit occurs often, the

III. Hypothesis of a retrograde motion of the lymphatics. Started by C. Darwin.

Scope of argument.

* Ut suprà, p. 97.

Gen. III. Spec. IV. Pavaria mellita. Saccharine urine.

urinary branches of absorbents at length gain a habit of inverting their motions whenever the lacteals are much stimulated: and the whole or a great part of the chyle, is thus carried to the bladder without entering the circulation, and the body becomes emaciated: while the urine is necessarily sweet and of the colour of whey. And on this account Mr. Darwin proposed to denominate the species before us a *chyliferous diabetes*.

III. Hypothesis of retrograde motion of the lymphatics.

Supported by the author of Zoonomia. Incidental facts that give it a colourable support. These facts explained in the Proem to the present Class.

This hypothesis, for, ingenious as it is, it has never been entitled to a higher character, became at one time also very popular, and was supported by the talents of the celebrated author of Zoonomia, the father of its ingenious inventor. A few singular facts which have occurred since the decease of both these writers, seem at first sight to give it a little colourable support: such as the rapid passage of certain substances from the stomach to the bladder apparently, according to the experiments of Dr. Wollaston and Dr. Marcet, without their taking the course of the circulation; and M. Magendie's experiments upon the lymphatic system, and the doctrine he has founded upon them. These, however, the author has examined with some attention in the Physiological Proem to the present class, and has endeavoured to reconcile them with the ascertained and admitted structure and laws of the animal frame: so that they can add but little to the speculation before us. And in truth, how much soever it may have been caught up hastily by men of warm imagination, or those who are fond of novelty, the soberer physiologists have never been made converts to it.

Objections urged by Cruikshank.

"In the diabetes", says Mr. Cruikshank, "it has been supposed that the chyle flows retrograde from the thoracic duct into the lymphatics of the kidney, from them into the cryptæ, so into the tubuli uriniferi, thence into the infundibula, pelvis, ureter, and so into the bladder. This opinion is mere supposition, depending on no experiments. And, besides that all such opinions should be rejected, why should the chyle flow retrograde into the lymphatics of the kidney and not into the lacteals themselves? And why are not the feces fraught with a

similar fluid as well as the urine? The arteries of the kidneys are, on these occasions, preternaturally enlarged, particularly those of the cryptæ or minute glands which secrete the urine. And it is infinitely more probable that the fluid of the diabetes arises from some remarkable change in the vessels usually secreting the urine, than from any imaginary retrograde motion of the chyle through the lymphatics of the kidneys."* Even Dr. Wollaston prefers a state of doubt concerning the course pursued by the above-mentioned substances to an adoption of this conjecture, notwithstanding the ready solution it offers to his experiments. "With respect", says he, "to Dr. Darwin's conception of a retrograde action of the absorbents, it is so strongly opposed by the known structure of that system of vessels, that I believe few persons will admit it to be in any degree probable."†

Class III. Order II. Saccharinæ. Urina lita. Saccharine urine. Hæmatosis. Hypothesis of a retrograde motion of the lymphatics. Further objected to by Wollaston.

Professor Frank seems to have been equally struck with the plausibility of the hypothesis and the objections to which it is open. And hence, without abandoning it, he endeavoured to mould it into a less objectionable form. He gives up the doctrine of a retrograde motion, but still conjectures that the disease is seated in the lymphatic system generally with which the urinary combines in excitement; and consists in a stimulation of both these systems by some specific virus, formed within, or introduced from without, and operating with a reverse effect to the virus of lyssa or canine madness; so that while the latter engenders a hydrophobia or dread of liquids, this excites an inextinguishable desire of drinking; and he particularly alludes, in illustration, to the virus of the DIPSAS or serpent of the ancients, which was proverbial for producing this effect; and hence, as we have already observed, gave rise to one of the names by which this disease was distinguished in earlier ages. He supposes that from the irritability thus induced in the lymphatic system, every other part of the general

Frank's modification of the hypothesis.

* On the Lacteals and Lymphatics, p. 69.

† Phil. Trans. ut suprà. 1811. p. 105.

Gen. III. Spec. IV. Paruria mellita. Saccharine urine.

frame is exhausted of its nutrition and healthy power; and that the fluids thus morbidly carried off are hurried forward, and especially that of the chyle, and of the cutaneous exhalants, to the kidneys, which concur in the same diseased action, and constitute the flow of urine, and especially of saccharine urine by which the disease is peculiarly characterised *. But this is rather to make an exchange of difficulties than to free the explanation from such impediments: and, in truth, to render the machinery still more complicated than under Mr. Charles Darwin's hands. Upon this view of the subject the kidneys play merely an under-part, and are only secondarily affected; yet admitting the real seat of the disease to be the lymphatics, why the urinary secernents should thus make common cause with them in the general strife in which they are engaged rather than those of the intestines, the skin, or any other organ, we are not informed. Nor have we any lamp to explain to us the nature of the specific poison here adverted to; or the path by which the chyle must travel to the kidneys without passing through the general current of the blood.

III. Hypothesis of a retrograde motion of the lymphatics. The difficulties hereby only exchanged, and the hypothesis more complicated.

IV. Hypothesis of a primary diseased state of the kidneys. Originated with the Greek writers:

IV. We come now to the fourth hypothesis to which the disease before us has given rise, and which places it primarily and idiopathically in the kidneys. These form, indeed, the most ostensible seat, and hence, as we have already seen, they were the first suspected, and were supposed by the Greek writers to be in a state of great relaxation and debility, and hence also of great irritability. To this irritability was ascribed their morbid activity, and the accumulation of blood with which they were overloaded: while their weakened and relaxed condition allowed the serous or more liquid parts of the blood to pass off through the patulous mouths of the excretories without restraint or change, and, consequently, in a crude and inelaborated form like the food in a lientery.

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* De Cur. Hom. Morb. Epit. Tom. v. p. 54. Mannh. 8vo. 1792.

Such was the explanation of Galen: and of all the hypotheses before us there is no one that seems to be so fully confirmed, as well by the symptoms of the disease during its progress, as by the appearances it offers upon dissection. The anatomists have hence generally adopted this opinion, which is to be found in Bonet *, Ruysch †, and Cruikshank ‡; and in proof that it has of late been gaining additional ground among physicians and medical practitioners in general, as well on the Continent as in our own country, it may be sufficient to refer to the writings of Richter, the works of MM. Nicholas and Gueudeville, and MM. Dupuytren and Thenard, already quoted from, and the communications of Mr. Watt, Dr. Henry, and, still more lately, of Dr. Satterley; several of whom, however, conceive the stomach or some other chylifactive organ to be affected at the same time secondarily or sympathetically.

Gen. III. Spec. IV. Paruria mellita. Saccharine urine. IV. Hypothesis of a primary diseased state of the kidneys, especially Galen; and best confirmed by the symptoms of the disease and the appearances on dissection. Has hence been daily gaining ground in our own country and abroad.

By far the greater number of these writers regard the irritation of the kidneys as connected with inflammation: though several of them ascribe it to a spasm. The latter seem to reason from the pain found occasionally in the region of the loins, and the limpidity and enormous quantity of the fluid that is discharged, which in their opinion is analogous to that evacuated in hysteria or hypochondrias: such was the opinion of Camerarius upwards of a century ago §, and it is that of Richter and Gueudeville in our own day: "la phthisurie", says the last, for under this name he describes saccharine urine, "est une consomption entretenue per une deviation SPASMODIQUE et continuelle des sucs nutritifs non animalisés, sur l'organe urinaire" ‖.

The morbid state of the kidneys mostly regarded as inflammatory: though by some writers as spasmodic, among the last are Camerarius, Richter, Gueudeville, and Cullen.

There seems after all but little to support this doctrine, and yet it was adopted by Cullen, and that so completely as to induce him to arrange diabetes in his Class Neu-

Hence diabetes placed by Cullen in his Class Neuroses.

* Sepulchr. Lib. III. Sect. XXVI. Obs. 1.

† Observ. Anat. Chir. N. 13.

‡ On the Lacteals and Lymphatics, p. 69.

§ Diss. de Diabete Hypochondriacorum Periodico, Tub. 1696.

‖ Recherches et Expériences Médicales, &c. 8vo. Paris, 1803.

GEN. III. SPEC. IV. Paruria mellita. Saccharine urine.

roses, and Order Spasmi, immediately before hysteria, and hydrophobia. His reason for doing so is contained in the following passage in his First Lines: "As hardly any secretion can be increased without an increased action of the vessels concerned in it, and as *some* instances of this disease are *attended* with affections manifestly spasmodic, I have had no doubt of arranging the diabetes under the order of spasmi."* A more unsatisfactory reason has, perhaps, never been offered, nor does the author himself seem satisfied with it, for we find him, shortly afterwards, not indeed, like M. Gueudeville, uniting it with another cause to give it potency, but abandoning it for this auxiliary cause which seems to be adopted exclusively: for he adds within a few aphorisms, "I think it probable that, *in most cases*, the proximate cause is some fault in the assimilatory powers, or those employed in converting alimentary matter into the proper animal fluids."†

IV. Hypothesis of a primary diseased state of the kidneys. His reason for so doing. This reason unsatisfactory: and apparently so to himself: whence he ascribes the seat of the disease elsewhere to the assimilating powers.

Whether any other part idiopathically affected in conjunction with the kidneys. Question examined with deference.

But admitting the kidneys to be in a morbid and highly irritable state, which is the oldest, and apparently the best supported doctrine upon the subject, and that this state is connected with an inflammatory action of a peculiar kind, what necessity is there for supposing an idiopathic affection of any other part, whether the stomach or the nerves, the chylifacient or the assimilating powers? And why may not every other derangement that marks the progress of the disease be regarded as consequent upon the renal mischief? I ask the question with all the deference that is due to the distinguished authorities that have passed in review before us, the value of whose writings, and the extent of whose talents no man is more sensible of than myself: but I ask it also, after having studiously attended to the nature of these derangements both in theory and in all the practice which has fallen to my own lot, and with a strong disposition to believe that the whole can be traced and resolved into this single and original source,

* Pract. of Phys. Aph. MDIV. † Id. Aph. MMXII.

and consequently that diabetes is a far less complicated disease than has hitherto been imagined.

Gen. III. Sect. IV. Paruria mellita. Saccharine urine. IV. Hypothesis of a primary diseased state of the kidneys.

That an inordinate excitement of the kidneys is capable of augmenting the urinary secretion, whatever be the cause of such excitement, is obvious to every one who has attended to the stimulant effects of spirits drunk to excess, hysteria, and several other irregular actions of the nervous system, and the whole tribe of diuretics.

Inordinate excitement of the kidneys even when secondary, capable of increasing the flow of urine.

In all these cases, however, the excitement is only secondary, and follows upon a previous affection of some other organ or part of the system. But in the disease before us, we are contemplating a primary excitement, a morbid action originating and seated in the kidneys themselves. And surely when we reflect upon the prodigious quantity of serum the excretories of the cellular membrane are capable of separating and carrying off from the blood in cellular dropsy, and those of the more limited range of the pleura or the peritonæum in dropsy of the chest or of the belly, there can be no difficulty in conceiving that the emunctory of the kidneys, whose function, when in health, consists in eliminating a very large portion of the more attenuate parts of the blood, should, when in a state of morbid and increased action, be capable of secreting quite as prodigious an excess of fluid as is found secreted in any kind of dropsy whatever. And hence, from a morbid irritation of the kidneys alone, we may, I think, satisfactorily account for the largest quantity of water that is ever discharged in the disease before us, and see with what peculiar force it was denominated by the Greeks HYDRRUS (ὑδρρυς), or water-flux, as also HYDROPS *matellæ*, or URINAL DROPSY.

In the present instance the excitement is primary: whence we have reason to expect a still larger flux.

Argued from the effects of the excited excretories of the cellular membrane in dropsy.

Analogy pursued further between saccharine urine and dropsy.

This analogy will be still more obvious from our following up the common forms of dropsy to their ordinary consequences, and comparing them with the consequences of diabetes. As the watery parts of the blood in cellular or abdominal dropsy are drawn off with great rapidity and profusion to a single organ, every other organ becomes necessarily desiccated and exhausted; the skin is harsh and dry, the muscles lean and rigid, the blood-vessels col-

GEN. III. SPEC. IV. Paruria mellita. Saccharine urine.

lapsed, the bowels costive, and the adipose cells emptied of their oil. Every part of the system is faint, and languishes for a supply, and hence that intolerable thirst which oppresses the fauces and stomach, and urges them by an increased action to satisfy the general demand. This is a necessary effect of so profuse a depletion, be the cause what it may: and we have reason, therefore, to augur à priori that such an effect must follow in this form of the Greek HYDERUS or water-flux. That it *does* follow we have already seen; and we are hence led almost insensibly to adopt, in its fullest latitude, the correct doctrine of Dr. Latham, that "the increased appetite in this last disease, however great it may be, is a natural sensation, calling into its full exercise that organ through which the constant waste of the body must be directly supplied, and without which the patient must soon inevitably perish."*

IV. Hypothesis of a primary diseased state of the kidneys.

Hence all the known symptoms of saccharine urine may arise from a morbid excitement of the kidneys alone.

From a morbid excitement, then, a weak and irritable inflammation, if I may be allowed the expression, of the kidneys alone, we are able to account, not only for all the local symptoms of an enormous flux of water, lumbar, or hypochondriac pains, and occasionally fulness, and the post-obit appearances of distended or "preternaturally enlarged arteries", as observed by Mr. Cruikshank, "blood-vessels more crowded than in a natural state, so as in some parts to approach to the appearance of inflammation", as observed by Dr. Baillie, "ossified arteries", as observed by Mr. Gooch, and "a glutinous infarction of the parenchyma of the kidneys", as observed in other cases by Plencis†; but also for all the constitutional symptoms of a dry, harsh, and heated skin, general emaciation, and sense of exhaustion, depression of animal spirits, great thirst and voracious appetite. In dropsy, indeed, the appetite is not uniformly voracious, nor is it always so in diabetes: but that inanition of almost every kind has a tendency to produce this symptom, where the tone of the stomach is not interfered with or has re-established itself,

* Practical Treatise, &c. p. 417.

† Acta et Observationes Med. p. 153.

is manifest from its occurring so commonly after severe fatigue, long fasting, protracted fevers, or any other exhausting state of body. And hence the very existence of the symptom in diabetes is a direct proof that the action of the stomach, instead of being morbid, is perfectly sound, though inordinately excited.

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But the grand question, it may, perhaps, be said, still remains untouched. How are we to account for that crude, fused, or dissolved state of the blood, which appears so conspicuously in diabetes, and which reduces it from an animalized to a vegetable crasis? Now upon this point, let us fairly put to ourselves this previous question: Does such a state of the blood appear at all? and is it in fact reduced or changed in any respect from its animalized character antecedently to its arrival at the morbid organ of the kidneys? So far as we have been able to obtain information from chemical experiments, the blood of a diabetic patient continues in full possession of its animalized qualities, and evinces no approach towards those of vegetable fluids: and so far as we can judge from its being drawn from the arm during life, instead of evincing a thin, dissolved, and colourless state, it discovers that very condition which we should anticipate as a natural consequence of a very copious abstraction of its serous or more liquid principles. For we are told, without a dissentient voice, by those who have drawn blood freely and repeatedly during the disease, that it has the general appearance of treacle; thicker than natural from the drain of its finer parts, and darker from a closer approximation of its red corpuscles, little capable of coagulability from its loss of coagulable lymph, and hence not separating by rest into a proper serum and crassament. And we are told farther that wherever venesection has been serviceable, and the renal flux has diminished, the latter instantly assumes a greater disposition to coagulate, and loses the darkness of its hue.

IV. Hypothesis of a primary diseased state of the kidneys. The assertion of a fused or dissolved state of the blood examined. Does such a state exist?

Facts illustrative of the contrary.

The chief reason, after all, for supposing that this change from an animalized to a vegetable, or rather from an uric to an oxalic character, takes places in the blood

How far the present morbid excitement

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itself, is from the difficulty of conceiving how it can take place in the kidneys: the difficulty of explaining how an organ whose common function is to secern alkalies, and an acid strictly animal, should be brought to secern an acid directly vegetable. But, in the first place, is the difficulty one which is diminished by transferring this wonderful change of action to the assimilating powers, or to the stomach, or to any other organ? For let us lay the fault where we will, we are still involved in the dilemma of supposing that an animal structure whose healthy function consists in the formation of ammonia, has its action so perverted by the disease before us, as to produce sugar in its stead. And hence, by enlisting the assimilating powers into service upon the present occasion, we only gain two levers instead of one. We place the globe upon the elephant instead of upon the tortoise, but we have still to inquire what it is that supports the latter.

IV. Hypothesis of a primary diseased state of the kidneys.

of the kidneys may be sufficient to produce the chemical change that takes place in the urine. The difficulty not lessened by transferring this action to the assimilating powers.

The subject explained generally.

There are, however, if I mistake not, various pathological and physiological facts perpetually occurring before our eyes, which if properly applied, may at least reconcile us to this supposed anomaly, if they do not explain its nature: a very few of which I will briefly advert to.

Sugar produced by most organs under particular circumstances both of health and disease: as also under an animal or vegetable diet.

We see a tendency in most animal organs to produce sugar under particular circumstances, whatever be the character of their ordinary secretion; and this both in cases of health, where we have no ground for supposing an imperfectly animalized fluid; and in cases of disease where such a change may perhaps be contended for and supported: and we see this also, and equally, under an animal and under a vegetable diet; in some instances, indeed, most so where the former predominates. No one, if he did not know the fact, would predict that the breast of a healthy woman, which forms no sugar at any other time, would become a saccharine fountain immediately after child-birth; and still less so that an animal diet, or a mixed diet of animal and vegetable food, would produce a larger abundance than a vegetable diet alone: and least of all, that woman's milk produced by animal food

The female breast in a state of health produces more sugar under an animal than a vegetable diet and more in proportion than most

would yield more sugar in a given quantity than ass's, goat's, sheep's, or cow's; and less caseous matter than any of these quadrupeds*, though this last is the only matter of a strictly animalized quality which milk of any kind contains.

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This, however, is a natural process. Yet under the action of a morbid influence sugar is often produced in other organs, while what should be sugar in the mammæ is changed to some other substance. Under the genus Ptyalismus, we have observed, that the saliva is sometimes so impregnated with a saccharine principle as to acquire the name of p. *mellitus* †: it is indeed by some authors represented as having the sweetness of honey. Pus, under various circumstances, evinces a sweetish taste, and hence the occasional sweetness of the sputum in consumptive patients. So in fevers of various kinds, as we have already had several occasions to observe, and particularly in hectic fever, the sweat throws forth a vapour strongly impregnated with acetous acid. Even the ceramen sometimes both smells and tastes sweet; a fact noticed by Hippocrates, who at the same time remarks that it is a fatal symptom.

IV. Hypothesis of a primary diseased state of the kidneys.

quadrupeds: while it yields less caseous or animalized matter.

Sugar produced by the salivary glands and lungs, when in a morbid state.

Oxalic acid or the basis of sugar secreted from the skin.

As an animal product it might be reasonable to expect that the gastric juice would be alkaline, and it is so in some animals: yet those who have paid but little attention to animal chemistry will be surprised to learn that while it is for the most part neutral in animals that feed jointly on flesh and vegetables, it is alkaline in ruminating and graminivorous animals, or those that feed on grass, and acid in carnivorous animals, as the falcon, hawk, and heron. Upon which points the experiments of Brugnatelli‡, coincide with those of Carminati and Macquart.

Gastric juice neutral in omnivorous animals;

alkaline in graminivorous, and acid in carnivorous.

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* Experimens des MM. Stipriaan, Liviscius, et D. Bondt, in Mem. de la Societé de Med. à Paris. 1788.

† Vol. I. p. 68.

‡ Saggio d'un Analisà Chemica di Succi gastrici. Vide Crell, Beitrag. zu dem Chem. Annal. 1787.

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It is unnecessary to pursue these illustrations any further. Candidly reflected upon they cannot fail, I think, to diminish in a considerable degree, the repugnance which the mind at first feels in admitting a secretion of sugar by an organ, whose common function is so inaccordant with such a production: and consequently they co-operate in leading us to the conclusion which it has been the design of these remarks to arrive at, that paruria *mellita*, or diabetes, is a disease seated in the kidneys alone, and dependent upon a peculiar irritability or inflammation of the renal organ.

IV. Hypothesis of a primary diseased state of the kidneys. Hence the difficulty diminished in conceiving that the kidneys may in a morbid state secrete sugar.

Of the predisposing or occasional causes of this disease, however, we are still involved in considerable darkness; with the exception that whatever debilitates the system seems at times to become a predisponent, and only requires some peculiar local excitement to give birth to the disease, without which it is in vain to expect that it should take place. Hence it occurs to us, in some instances, as a consequence of old age, in others of a constitution broken down by intemperance or other illicit gratifications; in others again of a diseased liver, or diseased lungs *, of atonic gout, or suppressed eruptions: and particularly of chronic carbuncles, or ill-conditioned sores approaching to their nature, and showing like themselves a considerable degree of constitutional debility.

General result of the inquiry. Predisponent and occasional causes. Whatever debilitates the system becomes a predisponent, and only requires an exciting cause. Old age: a broken constitution: intemperance: a diseased liver: diseased lungs: atonic gout: chronic carbuncles or other ill-conditioned sores.

I am greatly obliged to Dr. Latham for calling my attention to this last fact while drawing up the present history of the disease, and for referring me in support of his own opinion upon this subject to the following passage in Cheselden: "There is sometimes a large kind of boil or carbuncle in this membrane, which first makes a large slough and a number of small holes through the skin which in time mortifies and casts off, but the longer the slough is suffered to remain the more it discharges, and the more advantage to the patient: at the latter end of which case the matter has a bloody tincture, and a bilious

The last particularly pointed out to the author by Latham in a passage from Cheselden.

* See Case in Latham's Tracts, &c. p. 142, as also the remarks already quoted from Dr. Bardsley.

smell, exactly like what comes from ulcers in the liver; and both these cases are attended with SWEET URINE as in DIABETES." *

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In concurrence with this remark of Cheselden, Dr. Latham informs me in a letter as follows: "I have a patient at this moment, whose diabetes was first observed after a long confinement from carbuncle: he is upwards of seventy, and is moreover afflicted with a mucous discharge from the internal coats of the bladder." Not dissimilar to which, is the following case, which is well worthy of notice, and occurs among the earliest, in Dr. Latham's treatise on this disease. "About the year 1789 there was a most remarkable case of diabetes in St. Bartholomew's hospital, under the immediate care of the late greatly to be lamented Dr. David Pitcairn. The patient's history of himself was this: that a rat had bitten him between the finger and thumb, that his arm had swelled violently, and that boils and abscesses had formed, not only in that arm but in other parts of the body: that his health from that time had decayed, and emaciation followed. His urine had then the true diabetic character both in quantity and quality: the saccharine part was in very great proportion, constantly oozing through the common earthen pot over the glazing, and affording an infinity of pure saccharine crystals, adhering like hoar-frost to the outside of the utensil, and which were collected by myself and by every medical pupil daily, in great abundance." †

IV. Hypothesis of a primary diseased state of the kidneys. Confirmed by his own practice.

How far the grand agent in this change of renal action, admitting the disease to be seated in the kidneys, is to be ascribed to a change in the quality or intensity of the nervous power transmitted to it, or, as the chemists call it, in the state of the animal electricity of the organ, to which power Dr. Wollaston has referred the production and distinction of all the secretions, I am not prepared to say: but the subject ought not to be concluded without noticing this conjecture, which at the same time imports, on the part of those who hold it, an admission of the general principle

Whether the proximate cause be a change in the animal electricity;

* Anatomy, 8vo. p. 139. † Facts and Opinions, p. 134.

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of the disease which I have endeavoured to support. "Since", says Dr. Wollaston, "we have become acquainted with the surprising chemical effects of the lowest states of electricity, I have been inclined to hope that we might from that source derive some explanation of such phænomena. But though I have referred secretion in general to the agency of the electric power with which the nerves appear to be indued, and am thereby *reconciled to the secretion of acid urine from blood that is known to be alkaline*, which, before that time, seemed highly paradoxical, and although the transfer of the prussiate of potash, of sugar, or of other substances may equally be effected by the same power as acting cause, still the channel through which they are conveyed remains to be discovered by direct experiment." *

IV. Hypothesis of a primary diseased state of the kidneys.

as conjectured by Wollaston.

Great diversity in the proposed plans of medical treatment.

Whilst such is the diversity of opinions which have been held concerning the pathology of honeyed paruria, it cannot be a matter of much surprise that the proposed plans of treatment should also exhibit a very great discrepancy.

At first sight most confused:

On a first glance, indeed, and without keeping the grounds of these distinct opinions in view, nothing can be more discordant or chaotic than the remedial processes proposed by different individuals. Tonics, cardiacs, astringents, and the fullest indulgence of the voracious appetite in meals of animal food, with a total prohibition of vegetable nutriment on the one side; and emetics, diaphoretics, and venesections to deliquium, and again and again repeated, on the other: while opium in large doses takes a middle stand, as though equally offering a truce to the patient and the practitioner.

but redeemable from this charge when closely examined:

different views having led to different intentions as follow.

It is easy, however, to redeem the therapeusis of the present day from the charge of inconsistency and confusion, to which at first sight it may possibly lie open. Different views of the disease have led to different intentions: but so long as these intentions have been clearly adhered to, how much soever they may vary in their respective

* Phil. Trans. 1811, p. 105.

courses, they are free from the imputation of absurdity. These intentions have been chiefly the following:

Gen. III. Spec. IV. Paruria mellita. Treatment.

I. To invigorate the debilitated organs whether local or general, and to give firmness and coagulability to the blood.

I. To invigorate the different organs and consolidate the blood.

This was the object of all the Greek physicians, and it regulated the practice to a very late period in the history of the disease. "The vital intention", says Dr. Willis, "is performed by an incrassating and moderately cooling diet; by refreshing cordials, and by proper and seasonable hypnotics." Hence agglutinants of all kinds were called into use, as tragacanth, gum arabic, and the albumen of eggs; and these were united with astringents as rhubarb, cinnamon, and lime-water, with or without an anodyne draught at evening as might be thought prudent. Sydenham carried the tonic and cardiac part of this plan considerably further than Willis: for while the latter chiefly limited his patients to milk or a farinaceous diet, the former allowed them an animal diet, with a vinous beverage. "Let the patient", says he, "eat food of easy digestion, such as veal, mutton, and the like, and abstain from all sorts of fruit and garden-stuff, and at all his meals drink Spanish wine."

The object of the Greeks and pursued to a late period: Willis:

Sydenham.

This plan continued in force with little variation, except as to the proportionate allowance of animal and vegetable food, till within the last thirty years. The chief tonic medicines being the warm gums, or resins, astringents and bitters. Alum and alum-whey appear to have been in particular estimation with most practitioners. They were especially recommended by Dr. Dover and Dr. Brocklesby in our own country, and by Dr. Herz* on the Continent. Dr. Brisbane, and Dr. Oostendyk†, on the contrary, assert that in their hands they were of no use whatever. Sir Clifton Wintringham applied alum dissolved in vinegar, as a lotion, to the loins. The other astringents that have been chiefly had recourse to are

Medicines chiefly employed.

* Sell Neue Beiträge, I. 124.

† Samml. auserl. Abhandl. für Pract. aerzte. B. I. 179.

Gen. III. Spec. IV. Paruria mellita. Saccharine urine. Treatment. I. To invigorate the different organs and consolidate the blood.

lime-water, as noticed already, chalybeate waters, kino and catechu in tincture, powder, and decoction; none of which however, seem to have been eminently serviceable. While cantharides as a local astringent has been exposed to a very extensive range of experiment both at home and abroad. Dr. Morgan gave it in the tincture, Dr. Herz in the form of powder, and both esteemed it salutary. Dr. Brisbane tried it in the first of these ways, giving from twenty to thirty drops, twice a-day: but appears to have been as dissatisfied with cantharides as with alum, and declares that all astringents are hurtful, as Amatus Lusitanus * asserted long before, that they are of no use.

Feeble remedial process of Frank.

The practice of Professor Frank seems to have been as feeble as his hypothesis. Though he notices the above remedies, together with various others, he seems to place more dependence upon a blister applied to the os sacrum, or the internal use of assafœtida, valerian, and myrrh, than upon any other course of medicine whatever: telling us, towards the close of his chapter, that a pupil of his employed the vesicating plaster as above with a happier success than any other plan, and hereby succeeded in restoring two diabetic patients to former health: while, for himself, in true diabetes mellitus, after alum, tincture of cantharides, Dover's powder with camphor, decoction of bark with simarouba, and myrrh with sulphate of iron (sal martis) had completely failed, he has obtained a manifest decrease of urine by assafœtida, with valerian and a watery infusion of myrrh: and at length by the aid of cuprum ammoniacale, given twice a day in doses of from half a grain to a grain, acquired for his patient a restoration to perfect health, which he confirmed by a generous diet. There is here, however, nothing mentioned of the *saccharine* property of the urine, but only an allusion to its excess; and it is hence highly probable that the case or cases alluded to were rather examples of enuresis than paruria mellita; and the rather as the hyderus of the Greeks, or insipid water-flux, forms a species of diabetes in his arrangement.

* Cent. v. Cur. 33.

Gen. III. Spec. IV. Paruria mellita. Saccharine urine. Treatment.

II. A second intention of pathologists in the present disease has been that of adding to the deficient animal salts, and resisting the secretion of sugar, by confining the patient to a course of diet and medicines calculated to yield the former, and to counteract the latter.

II. To add to the deficient animal salts and resist the secretion of sugar. Indirectly pursued by a part of the preceding plan: but only perfected by Rollo: outline of his practice.

This intention may have been indirectly acted upon by some part of the process we have just noticed, and particularly by the dietetic plan of Sydenham: but it is to Dr. Rollo that the medical world is immediately indebted for its full illustration, and the means of carrying it directly into effect, which consists in enforcing upon the patient an entire abstinence from every species of vegetable matter, and consequently limiting him to a diet of animal food alone: some form of hepatised ammonia being employed as an auxiliary in the mean time. Narcotics, as under the preceding intention, are also occasionally prescribed by Dr. Rollo: and, in accordance with his doctrine that the stomach is the chief seat of morbid action, and that the thirst and voracity are indications of such action, the aid of an emetic is occasionally called in to allay the high-wrought excitement.

Checking the vigorous desire of the stomach for food opposed by Latham; the rest of Rollo's plan acceded to. Phosphoric acid on what ground recommended.

From this last part of Dr. Rollo's curative method Dr. Latham appears to dissent upon the ground, and in the present author's opinion a correct ground, that the increased action of the stomach proceeds from a sound instead of from a morbid appetency: but to the injunction of an exclusive use of animal food, and a total abstinence from fermented and fermentable liquors, he accedes, with a full conviction of its importance, and without permitting the smallest deviation. And as Dr. Rollo, with a view of completing the intention of supplying the readiest means for a recruit of the deficient animal salts, prescribed hepatised ammonia as an auxiliary, Dr. Latham, for the same purpose, prescribes phosphoric acid, having observed in various cases of the disease an evident deficiency in the supply of phosphate of lime; whence, indeed, the destruction that is occasionally met with of the fangs of the teeth together with their alveolar processes.

Some severe remarks, which I am at a loss to account

Gen. III. Spec. IV. Paruria mellita. Saccharine urine. Treatment. II. To add to the deficient animal salts, and secretion of sugar. How far consistent with the professed intention of cure.

for, have occasionally been thrown out upon this last recommendation since the publication of Dr. Latham's very candid and ingenuous work. The idea is in perfect accordance with his own view of the general nature of the disease; and, in every view of it, is more likely to be of service than Dr. Rollo's hepatised ammonia, or, perhaps, than alkalies of any kind. For while, like the last, it has been suggested upon the principle of supplying to the kidneys the deficient materials upon which they are to work, it has a claim to attention as a very valuable tonic and astringent, even by those who may abjure this principle as incorrect, and particularly by the advocates for the mineral acids. I ought not indeed, while upon this subject, to conceal the following paragraph of a letter in direct allusion to it, addressed to me by Dr. Latham, while the first edition of this work was in the press, containing with much candour, his present opinion upon the general line of practice he thus undertook to recommend to the public, little less than twelve years before. "The experience", says he, "which I have had in diabetes since the publication of my observations on that disease, does not excite, in any degree, a wish to alter the opinions which I had then formed concerning it: and I am more and more convinced that, although my theory may be wrong, the practice has been successful. As to the theory about the phosphoric acid, I cannot help thinking that there is more in it than I ever suspected: be that however as it may, I urge my patients to persevere in its use, and am certain that it may do something more than produce a mitigation of the thirst, which circumstance of itself would be sufficient to maintain it as a remedy even if it went no further in effecting a cure."

How far productive of success.

III. To cut short the inflammatory state of the kidneys by copious and repeated venesections.

III. Some of the indications of the disease, however, have given rise to a much bolder intention. We have already seen that, from a few of its symptoms, and the appearances discoverable on dissection, there is reason to apprehend an irritable and inflammatory state of the kidneys; and it has hence been attempted to cut short the complaint, and, so to speak, to strangle this condition

at its birth, by copious and repeated bleedings. Le Fevre appears to have adopted and acted upon this principle almost as early as the beginning of the preceding century*; but he does not seem to have obtained any considerable number of converts to his opinion; and it is to Dr. Watt of Glasgow that we are principally indebted for whatever advantages may have resulted from this mode of practice in our own day; and particularly for trusting to it mainly or exclusively, and carrying it to a very formidable extent. The plan pursued by Dr. Watt has since been pursued by Dr. Satterley, and the success obtained by the former has apparently been more than equalled by the latter, in the course of various trials, of which a very interesting account is detailed in a late volume of the Medical Transactions†. These trials embrace four distinct cases, the first of which is given most at length. The patient was thirty-two years of age: and had been in a state of progressive debility for nearly six months, brought on in the first instance, as was apprehended, by his having drunk copiously of cold water when overheated. He fell under Dr. Satterley's care in consequence of being taken to the Middlesex Hospital; the symptoms were strongly marked, and the disease unequivocal: the pulse was quick, small, and hard. Fourteen ounces of blood were taken from the arm on the day after his admission, which was Feb. 19, 1808: he was put upon a meat diet, with an allowance of drink sufficient to allay, though not to satiate, his distressing thirst. The abstraction of blood appearing to afford relief, eighteen ounces more were taken from him the next day, the 20th; twenty ounces more on the 23d; the same quantity on the 25th; and eighteen ounces successively on the 28th, on March the 3d, and March 11th: making a total of a hundred and twenty-six ounces in twenty days. On the day and night of admission, he had evacuated sixteen quarts of urine; after the first use of the lancet, the quantity was reduced to eleven quarts in twenty-four

GEN. III. SPEC. IV. Paruria mellita. Saccharine urine. Treatment. III. To cut short the inflammatory state of the kidneys by copious and repeated venesections. Early acted upon by Le Fevre. Revived by Watt. Supported by Satterley. Series of experiments of the latter.

* Opera, p. 134. Venunt. 1737. 4to. † Vol. v. Art. 1.

GEN. III. SPEC. IV. Paruria mellita. Saccharine urine. Treatment. III. To cut short the inflammatory state of the kidneys by copious and repeated venesections.

hours; after the second, to six quarts; after the third, it varied from five to seven quarts; after the fourth, it stood at six; after the fifth, it varied from five to six; after the sixth, it sunk below five; and at the time of the seventh, was calculated at three, and had sometimes been not more than two: at which time his morbid thirst had entirely left him, he was in tolerably good health, and increased in strength and size. In consequence of some pneumonic symptoms, he was afterwards blooded once or twice, and detained in the hospital for a long period of time, though the term is not stated. He was, however, at length discharged cured, and was found several years afterwards to have kept free from any return of the complaint.

Accompanying regimen and course of medicines.

The regimen and accompanying course of medicines are not very accurately stated. He seems to have been limited to a diet of animal food; to have used alternately as a part of his beverage alum-whey and lime-water; to have taken occasionally calomel, and castor-oil, and for a part, if not the whole period, a grain of calomel and a dose of compound powder of ipecacuan every night, the quantities of which are not given. But it was the depleting plan that was altogether depended upon, and no very minute attention was paid to any thing else.

Further illustrated.

The two next cases admitted of easier cure under the same treatment. The patients were both males. The fourth case breaks off incompletely, for, in consequence of a removal of the patient, the termination was not known.

In each of these there was the local symptom of great pain in the loins, which in the first is described as having been "always severe but at times excessively acute". Here also the testicles were occasionally retracted; and in one of two female cases there was a distressing itching in the pudendum: so that there is reason to conclude that these instances were accompanied with a more than ordinary degree of irritability or inflammation. "This", says Dr. Satterley, "is the extent of my experience respecting bleeding in diabetes: an experience that fully warrants my asserting the safety, and I think the efficacy, of the practice, *in some species* of this complaint".

GEN. III. SPEC. IV. Paruria mellita. Saccharine urine. Treatment. IV. To subdue the irritation by a quick repetition of powerful narcotics. This plan also partially pursued by Willis and Sydenham. Tried in conjunction with diaphoretics by M'Cormick. Tried simply and most powerfully by Warren. Summary of his experiments. Ipecacuan in union with laudanum, a clog upon the latter.

IV. It has, however, been thought possible by other practitioners, to subdue the irritation whether local or general, and which is often strikingly conspicuous, by powerful narcotics repeated in quick succession; and thus to obtain a cure without that increase of debility which, in many cases, must necessarily ensue upon an active plan of depletion—and this has constituted a fourth intention.

Anodynes, though of no great potency, were occasionally administered by Willis and Sydenham: and their benefit was expressly insisted upon by Buckwald *. The ordinary form has been that of Dover's powder, thus aiming at a diaphoretic as well as a sedative effect: and in this form it has sometimes been found successful, particularly in a case published by Dr. M'Cormick in the Edinburgh Medical Commentaries †, and more lately by Dr. Marsh of Dublin, as communicated in a recent volume of the Dublin Hospital Reports ‡; but I am not aware that narcotics alone have been relied upon, or their effects completely ascertained before the late experiments of Dr. P. Warren, an interesting statement of which he has communicated in the same work that contains Dr. Satterley's practice in venesection §. These experiments embrace the progress of two cases that occurred under Dr. Warren's care in St. George's Hospital. In the first he directed his attention, like Dr. M'Cormick, to opium, in conjunction with some relaxant; and hence made choice of the compound powder of ipecacuan. So far as the present cases go, however, they prove very satisfactorily that whatever benefit is derivable from the use of this valuable medicine, depends far more upon its sedative than its sudorific power. Dr. Warren, indeed, seems rather to have found the latter a clog upon his exertions, as he could not carry the opium far enough to produce a permanent effect on account of the nausea or vomiting occasioned by the ipecacuan, from which symptoms no

* Dissert. de Diabetis Curatione, &c.

† Vol. IX. Art. II. p. 56.

‡ Dublin Hospital Reports, vol. III. 8vo. 1822.

§ Vide suprà.

GEN. III. SPEC. IV. Paruria mellita. Saccharine urine. Treatment. IV. To subdue the irritation by a quick repetition of powerful narcotics.

benefit whatever appeared to be derived. In his first case, therefore, he soon trusted himself to opium alone, and persevered in the same practice through the second.

These patients also were in the prime or middle of life: the one aged twenty-two, the other thirty-eight: and both had been declining for some months antecedently to their applying to St. George's Hospital for relief. The first seems to have been worn down by the fatigue of journeying, and was considerably disordered before the attack of diabetes, in his stomach and bowels. When received into the hospital, however, with this last complaint upon him, he had a considerable pain in his back and loins. Of the origin of the second case no account is given. To ascertain whether an animal diet would succeed by itself, or whether it be of any collateral advantage, the patients were sometimes restricted to animal food alone, to opium alone, and to opium with a mixed diet of animal and vegetable food. It appears to me, from the tables, that the animal regimen was of advantage, but certainly not alone capable of effecting a cure; for in every instance the quantity of urine increased and became sweeter, whatever the diet employed, as soon as the opium was diminished. Dr. Warren, however, is inclined to think that it was of no avail whatever; and, consequently, the second patient had no restriction upon his food, whether animal or vegetable. The quantity of opium given was considerable. When Dover's powder was employed it was gradually increased from a scruple to a drachm twice a-day. And when opium was employed alone, or with kino, with which it was for a short time mixed, but without any perceptible advantage, it was augmented from four grains to six grains and a half twice a-day in one patient: and to five grains four times a-day in the other. It is singular that the opium seldom produced constipation. Few other medicines were employed *.

Animal diet seems in this case to have been of use: but the contrary concluded by Warren.

. The disease in both cases was as decided as in the preceding treated by venesection: but the flow of urine was

* Med. Transact. Vol. IV. Art. XVI. p. 188.

much less, the maximum in the one patient being only fifteen, and in the other only eight pints in the twenty-four hours: and the cure occupied a much longer period of time; running on to nearly four months in the first instance, and to more than six in the second.

GEN. III. SPEC. IV. Paruria mellita. Saccharine urine. Treatment. IV. To subdue the irritation by a quick repetition of powerful narcotics. General result of the investigation in respect to treatment.

The sum of the whole appears to be that paruria *mellita* attacks persons of very different ages, constitutions, and habits, and hence, in different cases, demands a different mode of treatment: and that the morbid action is seated in the kidneys; with the irritable, and, often, inflammatory, state of which all the parts of the system more or less sympathize. It appears that under a diet of animal food strictly adhered to, the tendency to an excessive secretion, and particularly to a secretion of saccharine matter, is much less than under any other kind of regimen, though, from idiosyncrasy or some other cause, this rule occasionally admits of exceptions. It appears also that the irritation is in some instances capable of being allayed, and at length completely subdued by a perseverance in copious doses of opium, probably by an exhaustion of the general excitability; and in others by a free use of the lancet, leading more rapidly to a like effect. The skin, through the progress of this complaint, does not seem to catenate in the action of the kidneys so much as in many others, except in a few individuals; and hence diaphoretics are rarely of advantage. As the irritability of the affected organ is connected with debility and relaxation, tonics are frequently found serviceable, and particularly the astringents; those mostly so, that are conveyed to the kidneys with the least degree of decomposition. And hence the advantage that has been so often found to result from an use of lime-water, alum-whey, and many of the mineral springs. The mineral acids are, on this account, a medicine of very great importance, and in some instances have been found to effect a cure alone; of which Mr. Earnest has given a striking proof in a professional journal of reputation*. Their sedative

* Medical Journal, Vol. XIII.

GEN. III. SPEC. IV. Paruria mellita. Saccharine urine.

virtue is nearly equal to their tonic, and they surpass every other remedy in their power of quenching the distressing symptom of intolerable thirst. Cinchona and various other bitters have been tried, but have rarely proved successful. Some benefit has occasionally been derived from irritants applied to the loins, and especially from caustics; but these have also failed. The colchicum autumnale, since its revival has been had recourse to by several practitioners; and in some cases apparently with far more success than opium.

General result of the investigation. Colchicum autumnale.

Sanguineous depletion cannot form a general practice, and why.

How advantageous soever the plan of sanguineous depletion may be found occasionally, it is clear that it cannot be had recourse to generally; for the present disease, is, for the most part, though by no means always, a result of advanced years and of a debilitated constitution. Under such circumstances, indeed, it has uniformly occurred to the present writer, in the few instances he has been called upon to superintend it, in which, while the thirst was intense, the appetite by no means kept pace with it, and was sometimes found to fail completely. Where, on the contrary, the constitution does not seem seriously affected, and the soundness and, indeed, vigour of the stomach and collatitious viscera are sufficiently proved by the perpetual desire of food to supply the waste that is taking place, a free use of the lancet may probably be allowed as offering what may be called a royal road to the object of our wishes: but the practice should, I think, be limited to this state of the animal frame; since, while this favourable condition of the digestive organs remains, whatever be the prostration of strength induced by the lancet, it will soon be recovered from.

Where it may possibly prove successful.

Explanation attempted by what means animal diet proves beneficial.

By what means an animal diet effects the beneficial change that so generally follows from its use, has never, that I know of, been distinctly pointed out: but there is a fact of a very singular kind that has lately been discovered in animal chemistry which is, I think, capable of throwing a considerable light upon the subject. In healthy urine, the predominant principle is that of uric acid, in diabetic, that of saccharine or oxalic. The uric acid, in-

deed, exists so largely in sound urine as to be always in excess, as we shall have occasion to observe under LITHIA or URINARY CALCULUS. It is not only a strictly animal acid, but, till of late years, was supposed to exist in no other urine than that of man; though it has since been found, but in a smaller proportion, in the urine of various other animals. Whatever then has a tendency to reverse the nature of the acid secretion in the disease before us, to produce uric instead of oxalic acid, and in this respect to restore to the urine its natural principle, must go far towards a cure of the disease, as well by taking off from the kidneys a source of irritation, and hereby diminishing the quantity of the secretion, as by contributing to the soundness of the urine itself. Now the physiological fact I refer to is, that animal food has a direct tendency to induce this effect: for Dr. Wollaston has satisfactorily ascertained that a greater quantity of uric acid is produced in the dung of birds in proportion as they feed on animal food: and he has hence ingeniously suggested, that where there is an opposite tendency in the system to that we are now contemplating, a tendency to the secretion of an excess of uric acid, as in the formation of uric calculi and gouty concretions, this evil may possibly be obviated by a vegetable diet.

GEN. III. SPEC. IV. Paruria mellita. Saccharine urine. General result of the investigation.

Singular analogy illustrative of this effect.

SPECIES V.

PARURIA INCONTINENS.

Incontinence of Urine.

FREQUENT OR PERPETUAL DISCHARGE OF URINE, WITH DIFFICULTY OF RETAINING IT.

GEN. III. SPEC. V.

THIS is the enuresis of most of the nosologists, and admits of four varieties from diversity of cause and mode of treatment, with often a slight diversity in some of the symptoms.

α Acris. Acrimonious incontinence of urine.	From a peculiar acrimony in the fluid secreted.
β Irritata. Irritative incontinence of urine.	From a peculiar irritation in some part of the urinary channel.
γ Atonica. Atonic incontinence of urine.	From atony of the sphincter of the bladder.
δ Aquosa. Flux of aqueous urine.	From superabundant secretion: the fluid limpid and dilute.

α P. incontinens acris. Acrimonious incontinence of urine.

In the FIRST VARIETY, proceeding from a peculiar acrimony of the secreted fluid, the cause and effect are mostly temporary; as too large a portion of spirits combined with certain essential oils, as that of the juniperberry. Diluents and cooling laxatives offer the best cure.

β P. incontinens irritata. Irritative incontinence of urine.

In the SECOND VARIETY, the irritation usually proceeds from sand or gravel, or some foreign substance, as hairs, accidentally introduced into the urethra. We have some accounts, however, of a discharge of hairs in such quantities that it is not possible to ascribe the affection to an accidental cause; and we should rather, perhaps, resolve

them into a preternatural growth of hair in the bladder itself; an idea the more tenable as we shall have to observe, in due time, that calculi of the bladder have occasionally been discharged or found after death surmounted with down. In this case the disease may be regarded as a species of trichosis, under which name it is described by Goelicke *, as it is under that of trichiasis by Scultetus †. But at present we are in want of decisive information upon the subject. If the last view be correct, filling the bladder with injections of lime-water or any other depilatory liquid of as much acrimony as the bladder will bear without injuring its internal and mucous surface, will be the best mode of cure.

GEN. III. SPEC. V. β P. incontinens irritata. Irritative incontinence of urine. Sometimes hairs discharged and in abundance, as though grown in the bladder; and hence described as a species of trichosis or trichiasis.

Frequently, however, the irritation is that of simple debility: and hence, tonics and stimulants, as the terebinthinates or even the tincture of cantharides, may be employed internally with success, while externally we prescribe blisters to the perinæum, or the cold water of a bidet. Pressure is also of great service in many instances. In the sixth volume of the Medico-Chirurgical Transactions, Mr. Hyslop gives a case of nine years' standing, in which a cure was effected in three days by binding a bougie tightly to the urethra through its course by means of adhesive plaster. And Mr. Burns gives another case, in the same volume, in which great benefit was derived from a similar plan: which is also in many instances equally adapted to the next variety.

Frequently an irritation of simple debility. Treatment.

In INCONTINENCE of URINE FROM AN ATONY of the sphincter of the bladder, the same means may be had recourse to, though with less hope of success.

γ P. incontinens atonica. Atonic incontinence of urine.

Stoll recommends the use of an acetum armoracium, which, from combining a stimulant with a tonic and astringent power, may possibly be found serviceable, and is certainly worthy of trial‡. Small shocks of electricity passed from the pubes to the perinæum seem also to have

* Dissert. de Trichosi. Frankf. 1724.

† Trichiasis admiranda, seu Morbus Pilaris, &c. Noric. 1658.

‡ Prælect. p. 287.

GEN. III. SPEC. V. γ P. incontinens atonica. Atonic incontinence of urine. Cantharides so as to produce strangury.

succeeded in a few cases. But the best radical cure seems to be obtained by cantharides applied in the form of vesicatories, or taken in that of tincture so as even to produce a strangury where this can be accomplished; which is in fact nothing more than stimulating the muscles that have lost their tone, into a new and even excessive action. For such an action, when once effected, can often be moderated and made regular. Mr. Bingham has given one or two instructive cases of a result * of this kind.

Means for preventing a dribbling of urine.

As the perpetual dribbling of the urine in this, and even the preceding variety, is always troublesome, and often produces excoriation, the patient will find it very convenient to be provided with a light urinary receptacle. This, for males, may consist of a small bag of oiled-silk worn as a glove for the penis, with a small piece of sponge placed in it as an absorbent. The simplest contrivance for females is a larger piece of soft sponge loosely attached to the pudendum.

δ P. incontinens aquosa. Flux of aqueous urine.

The FOURTH VARIETY, or flux of aqueous urine, is often a nervous affection, as in hysteria, or hypochondrias; but it more generally proceeds from a relaxation of the mouths of the cryptæ or tubuli uriniferi, which in consequence suffer a much larger quantity of fluid, and with too little elaboration, to pass through them than they should do.

In treating of paruria *mellita*, we observed that, antecedently to the discovery of the singular secretion of sugar in the genuine form of this disease, the term diabetes, by which it was commonly expressed, imported any extraordinary or profuse flow of urine, whether watery or saccharine: whence the term was made to embrace at least two affections of the kidneys of very different kinds: as a simple relaxation of the mouths of the urinary tubules from debility; and vehement excitement and a morbid change of action; the former expressed by diabetes *insipidus*, and the latter by d. *mellitus*. The variety we are now contemplating constitutes the first of these; as the second

* Practical Essay on the Diseases and Injuries of the Bladder, &c. 1822.

runs parallel with the preceding species. It is the urina *aquosa* * of Galen which was also by himself, as well as the Greek writers in general, blended with the urina *mellita*, from their not having been acquainted with the difference of their constituent principles, and of the state of the kidneys in the one case and in the other; and hence both were equally described by them under the names of hyderus or water-flux, and hydrops matellæ or urinal-dropsy: and as Professor Frank has even in the present day followed or rather revived the Greek import of diabetes, his enuresis embraces the preceding varieties, but omits the present, as included under the former †.

Gen. III. Spec. V. } P. incontinens aquosa. Flux of aqueous urine. Often the diabetes insipidus of many writers: the urina aquosa of Galen: Diabetes of Frank, and hence a variety of his hyderus or hydrops matellæ. Medical treatment.

As this variety, like the preceding, is dependent on a debilitated state of the organ, it should be attacked with the same remedies, and particularly with astringent tonics and stimulants both local and general. Blisters applied to the loins will be found often useful, as may also tincture of cantharides in doses of from twenty drops to half a drachm or even a drachm. The warm and resinous balsams will moreover frequently afford aid, as turpentine and balsam of copaiva, or the essential oil of juniper.

Quantity hereby discharged sometimes enormous.

The quantity discharged under this variety of the disease has occasionally been enormous: amounting to from thirty to forty pints a-day and sometimes more, for one, two, or even three months without intermission; a variety of examples of which are offered in the volume of Nosology. Fonseca mentions a case of two hundred pints evacuated daily, but for what term of time is uncertain ‡.

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* De Crisibus, Lib. I. Cap. XII.

† De Cur. Hom. Morb. Epit. Tom. V. p. 68.

‡ De Naturæ Artisque Miraculis, p. 538.

SPECIES VI.

PARURIA INCOCTA.

Unassimilated Urine.

URINE IMPREGNATED WITH FLUIDS TAKEN INTO THE STOMACH AND EXCRETED WITHOUT CHANGE.

GEN. III. SPEC. VI.

Parallel with some of the varieties of diabetes of the Greek writers.

THE Greek pathologists evidently allude to this morbid state of the urinary organs in comparing some varieties of their diabetes, or urinary diarrhœa, to a lientery or lævitas *intestinorum*, under which last the food is described by them as evacuated in a crude and undigested state, with very little alteration from the condition in which it was introduced into the stomach.

Nature of the disease explained.

The experiments of Sir Everard Home, and those of Dr. Wollaston, and Dr. Marcet, both contained in the Philosophical Transactions for the year 1811, show that rhubarb and prussiate of potash, may pass from the stomach into the bladder, without undergoing any decomposition; and, in these cases, apparently without taking the course of the blood-vessels. By what other path it is possible for them to have travelled is to this moment a subject of mere conjecture, upon which, however, the author has offered a few hints in the Physiological Proem to the present class. Oil of almonds has frequently reached the bladder with an equal destitution of change and has been discharged in the form of oil by the urethra *: and oil of turpentine and juniper pass off in the same manner daily.

Further illustrated.

Actuarius mentions a discharge of urine of a blue colour, in a boy who had taken a bitter pill designed for another patient, but does not state the materials. Urine containing a sediment resembling Prussian blue was discharged copiously by a patient in a low fever about three days before his death: it afterwards became greenish, and pos-

* Bachetoni, Comment. Bonon. Tom. II. Part. I.

GEN. III. SPEC. VI. Paruria incocta. Unassimilated urine.

sessed a strong ammoniacal smell. Another case is related by the same author of a discharge of blue urine in a woman of sixty, without mischief. We do not know, however, that either of these two last cases was connected with any thing introduced into the stomach, and the blue or dark-coloured matter consisted probably of extravasated venous blood, intermixed with the yellow or other tinge of the urine: and perhaps we are to ascribe to a like cause a case related by Dr. Marcet, in which the urine was black, or rather became so, soon after being discharged, in a boy seventeen years old, and apparently healthy, and who had laboured under this affection from his birth. It was, however, accompanied with this peculiarity, that although in this state it was almost imputrescible, whenever occasionally the preternatural colour was lost, it became putrid very rapidly. Dr. Prout, who analysed it, thought he discerned some new substance in combination *with ammonia* *. Swediaur, under his genus dysuresia, enumerates urines of various other kinds †. And occasionally such morbid changes are to be found during paroxysms of hysteria, though more commonly the urine is then destitute of its natural colour ‡.

Marcet.

Prout.

Swediaur.

Medical treatment.

Copious diluents, mucilaginous or farinaceous, will at all times afford the best means of deterging the kidneys of any such untempered materials as those we are now contemplating; and if the colour should appear to proceed from a rupture of blood-vessels in the same organs, the affection will become a variety of hæmaturia, and should be treated accordingly §.

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* Trans. of Medico-Chir. Soc. Vol. XIII. Part. I. 1822.

† Nov. Nosol. Meth. Syst. II. 61.

‡ Practical Essay on the Diseases and Injuries of the Bladder, &c. 1822.

§ See Vol. II. p. 704.

SPECIES VII.

PARURIA ERRATICA.

Erratic Urine.

URINE DISCHARGED AT SOME FOREIGN OUTLET.

GEN. III. SPEC. VII. Nature of the species explained.

UNDER the preceding species, we have seen that certain substances introduced into the stomach, will find their way unchanged to the kidneys. The present species presents to us a singularity of a different and almost opposite kind, by showing us that the urine itself, in a certain condition of the organ that secretes it, or of the system generally, may travel from the kidneys to other regions in a form equally unchanged*. We know nothing of the means by which all this is accomplished, but we can sometimes avail ourselves of the fact itself, by employing a variety of medicines, which, in consequence of their being able, in this manner, to arrive at a definite organ without being decomposed in the general current of the blood, are supposed to have a specific influence upon such quarter, and have often been denominated specifics for such an effect; as cantharides in respect to the bladder, demulcents in respect to the lungs, and cinchona in respect to the irritable fibre.

Uroplania.

This disease has often been described under the name of uroplania, which is nothing more than a Greek compound for "erratic urine" as it is here denominated, but it has seldom been introduced into nosological arrangements. The cases, however, are so numerous and distinct, in writers of good authority, that it ought not to be rejected.

Mostly not a vicarious discharge but evacuation of genuine urine.

In most instances it is not a vicarious discharge; or, in other words, a secretion of a different kind compensating for a destitution of urine, but a discharge of an urinous fluid apparently absorbed after its secretion by the kidneys, and conveyed to the outlet from which it issues by a path

* See Spec. II. β of the present genus, urethral stoppage of urine.

GEN. III. SPEC. VII. Paruria erratica. Erratic urine.

or under a protection that has hitherto never been explained. We sometimes meet with it while there is a free secretion of urine by the kidneys, and a free passage by the bladder and urethra, in which case alone it can be called a disease. On other occasions we find it, as already observed under PARURIA *inops*, performing a remedial part, and travelling in the new direction to carry off recrementory matter that cannot be discharged at its proper outlet, nor retained in the blood without mischief.

Has been thrown off from the salivary glands, skin, navel, perinæum, ventricles of the brain. Discharged alternately from bowels and kidneys in extensive gushes.

It has in different persons been evacuated by the rectum, salivary glands, the skin at the navel, and by a fistulous opening into the perinæum and has sometimes been found, on post-obit examinations, filling the ventricles of the brain. Mr. Howship relates a singular case in which the secretion was discharged alternately, and in an almost incredible deluge each time, from the kidneys and the bowels, with long intervals of suppression, occasionally extending to six weeks or two months; an examination by the catheter proving that no water existed in the bladder during these periods. At one of these irregular tides twenty-two quarts were passed by the bladder in occasional spasmodic gushes within three days; and at another two gallons of urine were passed daily by the rectum for four days in succession. The patient was a lady twenty-four years old at the commencement of the disease, which, at the time of writing, had continued, with little variation, for nearly four years, apparently without much serious inroad on her constitution *. It does not seem to be accurately ascertained whether the discharge from the bowels was genuine urine or a substituted fluid.

The volume of Nosology gives a reference to cases and authorities illustrating each of these forms of discharge: and others are probably to be met with in other writings.

* Practical Treatise, &c., on Complaints that affect the Secretion of Urine. 8vo. 1823.

GENUS IV.

LITHIA.

Urinary Calculus.

MORBID SECRETION OR ACCUMULATION OF CALCULOUS MATTER IN THE URINARY CAVITIES.

GEN. IV. Origin of the generic term.

LITHIA is a Greek term from λίθος whence λιθιάω "calculo laboro". It has often been written lithiasis, which is here exchanged for lithia, since *iasis*, in the present arrangement, is limited, as a termination, to words indicating diseases affecting the skin or cuticle, and that for reasons which will be explained presently.

Synonymous with lithus and lithiasis.

The name of lithus or lithiasis, as used by Aretæus and Aurelianus, and that of calculus or sabulum, as employed by Celsus and Pliny, sufficiently evince the elementary principles of which the Greeks and Romans conceived urinary calculi to consist. The mistake is not to be wondered at when we reflect that it was not till about thirty years ago that these principles were detected with any degree of accuracy; and that we are indebted to the minute and elaborate experiments of Fourcroy and Vauquelin for an analysis that till their time, though successively pursued by Hales, Boyle, Boerhaave, and Slare, had been left in a very unsatisfactory state; and which even since this period has required the further corrections of Wollaston, Marcet, Cruikshank, Berzelius, Brande, and various other animal chemists to produce all the success we could desire. So generally was the belief that the calculi of the bladder were formed in the same manner and consisted of the same materials as the stones of the mineral kingdom, that Dr. Shirley published a learned book as late as 1671, which is now become ex-

Subject little known by chemical analysis till of late years.

tremely scarce, entitled " Of the causes of stones in the greater world in order to find out the causes and cure of the stones in man."

GEN. IV. Lithia. Urinary calculus.

The urinary secretion in a state of health is one of the most compound fluids of the animal system: and consists of various acids, and alkalies, the former, however, bearing a preponderancy, with a certain proportion of calcareous earth, and other materials which it is not necessary to dwell upon at present. The acid first discovered in it was the phosphoric, which was traced by Brandt and Kunckel, whence the experiments of Boyle from which he obtained phosphorus. The important discovery of uric acid was reserved for Scheele, who detected it in 1776: as he did also benzoic acid, chiefly confined to the urine of children. Proust has since proved that it contains also carbonic acid, and a peculiar resin like that of bile; and other acids, in smaller proportion, have more lately been ascertained by Thenard and Berzelius. Hence the calcareous earth that is separated by the kidneys, as we have had occasion to observe that it is also by most other organs of the body in a state of health or of disease, is productive of numerous compounds, as carbonate of lime, phosphate of lime, oxalate of lime: together with compounds still more complicated by an intermixture of the lime with the urinary alkalies. But as, in a state of health, the urine is always found to contain calcareous earth under some form or other, in a morbid state it is also found to contain magnesian earth more or less united with the other materials, both acid and alkaline. In many cases moreover, the natural acids, or the natural alkalies are secreted in excess, in others in deficiency. And from all these circumstances it is easy to conceive that a very great variety of concretions or calculi may at times take place either in the kidneys or in the bladder. How far these varieties extend, has, perhaps, not fully been determined to the present day, but the number which has been detected and analyzed is now very considerable and has been increasing ever since Dr. Wollaston's valuable essay on this subject, which appeared in the Philosophical Trans-

Compound principles of urine.

Phosphoric acid by whom first discovered. Uric acid when first discovered.

Carbonic acid, resin, and other substances. Hence the calcareous earth of the kidneys productive of numerous compounds.

Magnesian earth an occasional ingredient. Many of these principles secreted in excess or in deficiency. Hence the varieties of calculi almost innumerable.

Gen. IV. Lithia. Urinary calculus.

actions for the year 1797, and laid a foundation for the arrangement. Among those which have been subsequently ascertained, a few, and especially the cystic oxyde, have been discovered by himself; and the whole are thus enumerated by Dr. Marcet in a still later production of highly distinguished merit*. 1. *Lithic* calculus, composed chiefly of lithic or uric acid. 2. *Earth-bone* calculus, consisting chiefly of phosphate of lime. 3. *Ammoniaco-magnesian phosphate* or calculus in which this triple salt obviously prevails. 4. *Fusible* calculus, consisting of a mixture of the two former. 5. *Mulberry* calculus, or oxalate of lime. 6. *Cystic* calculus, consisting of the substance called by Dr. Wollaston cystic oxyde. 7. *Alternating* calculus, or a concretion composed of two or more different species arranged in alternate layers. 8. *Compound* calculus, the ingredients of which are so intimately mixed as not to be separable without chemical analysis. 9. Calculus from the *prostate gland*, of a peculiar kind, and consisting, according to Dr. Wollaston, "of phosphate of lime not distinctly stratified, and tinged by the secretion of the prostate gland." The two not hitherto described are, 10. *Xanthic* oxyd, making an approach to the cystic calculus, but giving, which that does not, a bright lemon residuum on evaporating its nitric solution. And 11. *Fibrinous* calculus, so called from its possessing properties exactly similar to those of the fibrine of the blood, and no doubt formed by a deposit from this fluid.

Arrangement attempted by Wollaston. And pursued by Marcet, who enumerates them as follows.

Of these, few only found in the kidneys, and many of them not often in the bladder.

Of these a few only are commonly found in the kidneys, though most of those which are found in the kidneys are found also in the bladder, and in reality constitute the common nuclei of the calculous concretions of this last organ; the augmentation resulting from other constituent principles of the urine, gradually separating, and encrusting them as they lie in the bladder in an undisturbed state.

The symptoms, moreover, of renal and vesical calculi differ as widely as their component parts, and hence point

* Essay on the Chemical History and Medical Treatment of Calculous Disorders.

out the necessity of subdividing the genus into the two following species: Gen. IV. Lithia. Urinary Calculus.

1. LITHIA RENALIS. RENAL CALCULUS.
2. ———VESICALIS. VESICAL CALCULUS.

SPECIES I.

LITHIA RENALIS.

Renal Calculus.

PAIN IN THE LOINS, SHOOTING DOWN TOWARDS THE TESTES OR THIGHS, INCREASED ON EXERCISE; URINE OFTEN DEPOSITING A SABULOUS SEDIMENT.

THE calculous matter of the kidneys sometimes passes off in minute and imperceptible grains with the urine, which are only noticed by their concreting or crystallizing about the sides of the vessel that receives it; and sometimes collects and forms very troublesome spherules or nodules in the substance or pelvis of the kidneys: thus offering the two following varieties: Gen. IV. Spec. I. Nature of the species explained.

α Arenosa. Urinary sand.	Pain slight, and unfrequent: free discharge of sabulous granules.
β Calculosa. Urinary gravel.	Pain mostly severe and constant; sabulous discharge small and seldom or never: calculus varying in size, often large and obstructing the pelvis or ureter of the kidney.

Urinary sand, or the sabulous matter deposited on the sides or bottom of a receiving vessel, is of two kinds, WHITE and RED: and it is of great importance to distinguish the one from the other as they proceed from very α L. renalis arenosa. Urinary sand; of two sorts white and red.

GEN. IV. SPEC. I. α L. renalis arenosa. Urinary sand.

different causes, and require a different, and, indeed, opposite mode of treatment. Mr. Brande has published an excellent treatise upon this subject in his Quarterly Journal; and in the remarks about to be offered upon this species, I shall avail myself in no small degree of the benefit of his labours in connexion with those of Dr. Marcet to which I have already referred.

White urinary sand. Healthy urine always contains an excess of acid, which is the uric, and holds the earthy salts in solution. If this be diminished the earthy parts separate and become deposited in the form of white urinary sand. Illustrated.

The urine, in a healthy state, is always an acid secretion, and it is the excess of its acid that holds the earthy salts in solution. If, from any cause, it be deprived of this excess, or, in other words, the secretion of its acid be morbidly diminished, the earthy parts are no longer held in solution, and a tendency to form a WHITE SAND or CALCAREOUS DEPOSITE immediately commences. And that this is the real source of its production is manifest from the simple experiment of mixing a little alkali with recently voided urine; for the alkali has no sooner exercised its affinity for the acid than the urine throws down a white powder. And hence a like deposite will not unfrequently take place upon using magnesia too freely.

Easy mode of curing this evil. Subsitution of some other acid. All acids will answer.

A knowledge of the cause of this modification of urinary sand puts us at once into an easy mode of curing it, a mode however which was first pointed out to the world by Dr. Wollaston. It consists in introducing into the system some other acid as a substitute for that which is wanting to the kidneys. All the acids seem to answer this purpose, but as the sulphuric usually sits easier on the stomach than any other of the mineral acids, it is entitled to a preference; and the more so on account of its superior tonic powers, and consequently its better adaptation to the chylifactive organs, a debility which is no unfrequent cause of the complaint. The vegetable acids, nevertheless, may be interposed, with the sulphuric, or, where the stomach is very delicate, entirely supersede their use. Of these the citric is the pleasantest and can be persevered in for the longest period of time, especially in the case of children. The tartaric, however, and especially in the form of creme of tartar, has the advantage of gently operating upon the bowels which is

always a beneficial effect. Carbonic acid whether taken in the form of effervescing saline draughts, or simply dissolved in water by means of Nooth's apparatus will also be found a useful and pleasant auxiliary. The general diet should be of the same description, and be as largely as possible intermixed with salads, acids, fruits, and especially oranges. Malt liquor should be abstained from; and, if the habit of the patient require that he should continue the use of wine, Champagne or Claret should be preferred to Madeira or Port.

Gen. IV. Spec. I. a L. renalis arenosa. Urinary sand. Carbonic acid. Acescent diet.

It is possible, however, that this modification may be a result of too large a secretion of calcareous earth, instead of too small a secretion of acid; yet the effect being the same the same mode of treatment will be advisable.

If too large a secretion of calcareous earth the result alike.

But the acid may be in excess instead of in deficiency, or, which is nearly the same thing, the natural secretion of calcareous earth may itself be deficient while the acid retains its usual measure: and in this case the acid itself has a tendency to form a deposite by crystallizing into minute and red spiculæ,—and hence the modification of RED SAND that is so frequently found coating the sides and bottom of chamber-utensils.

This acid may be in excess instead of deficiency:

Red urinary sand, a result of this.

This, like the preceding, is sometimes voided in a concrete or crystallized state, or the urine may be voided clear, and the deposite not take place till some hours afterwards. The last is ordinarily the result of some temporary cause, and is of no importance as it disappears with the cause that produces it. The first is of more serious consideration as it indicates a lithic diathesis that may lead to a formation of large and mischievous calculi, and is a pretty certain harbinger of the variety we shall have to notice under the name of gravel.

Voided in two ways.

As acids form the best preventive and cure in the preceding case, alkalies present an equal, or nearly equal remedy in the present, with the exception that the tendency to produce urinary red sand is more likely to run into a habit, and is hence less easily extirpated, than that to produce white.

This modification relieved by alkalies.

It has, in fact, been long known that concrete uric acid

Gen. IV. Spec. I. α L. renalis arenosa. Urinary sand.

The effect of caustic fixed alkalies upon concrete uric acid long known. Now known that alkaline carbonates are as effectual. Soda.

is soluble in the caustic fixed alkalies, and these were, in consequence hereof, the earliest forms of alkali adverted to for this deposite. But it has since been ascertained that the alkaline carbonates and sub-carbonates are equally effectual. And, as the latter are far less apt to disagree with the stomach than the former, they have very generally taken their place. Of the alkalies and alkaline carbonates, soda has commonly been found to answer the purpose best. It is, indeed, chiefly effectual in its pure state, but it is most convenient to use it in a milder form; and of all the forms it offers that of soda-water is the pleasantest, and may be persevered in for the longest period of time. Nevertheless there are some constitutions in which potash and its carbonate prove more effectual than soda, a remark for which we are indebted to Sir Gilbert Blane, who, on this account, has occasionally given it the preference, and for the sake of rendering it more palatable has sometimes partly saturated it with lemon-juice or citric acid; and where there has been severe or protracted pain, producing considerable irritation, has united it with opium*. A drachm of the carbonate of either of the fixed alkalies will form a moderate dose for an adult, and may be repeated two or three times a-day, taken during the effervescence produced by the addition of half an ounce of lemon-juice to the menstruum, which may consist of two ounces of water sweetened with honey.

Sometimes with an under dose of citric acid, or opium.

Ammonia and its sub-carbonate.

Ammonia and its sub-carbonate have been had recourse to, and with great advantage, where symptoms of indigestion have been brought on by the fixed alkalies; and particularly in cases in which red gravel is connected with gout, and the two diseases show a disposition to alternate.

Magnesia.

Magnesia is also of considerable use, as has been lately shown by Mr. Brande in two excellent papers upon this subject, published in the Philosophical Transactions†.

* Transactions of a Society for improving Medical and Chirurgical Knowledge, Vol. III. p. 358.

† Phil. Trans. Year 1810, p. 136; 1818, p. 213.

Taken in free and frequent doses it has often succeeded in checking the tendency to a formation of sand and gravel, and has kept many individuals free from this complaint for very long periods of time who have been constitutionally predisposed to it. Nevertheless it is not calculated to supersede the use of the alkalies, but may be employed as a convenient adjunct, or supply their place for a time, when the patient has become tired of using them.

GEN. IV. SPEC. L. a L. renalis arenosa. Urinary sand.

There is some doubt as to the manner in which the acids employed to correct a secretion of white sand, and the alkalies that of red, fulfil their object: whether indirectly, by a peculiar action on the chylifacient organs so as to render the fresh supply of nutriment more easily disposed to yield an acid in the one case, and less easily in the other; or directly, by passing unchanged along the current of the blood and arriving at the kidneys in their proper forms. There is a difficulty attending both these views; but as uric acid, though soluble in the caustic alkalies, is found not to be soluble in their carbonates and sub-carbonates, the benefit of alkaline medicines does not seem referable to their solvent powers. And hence it is, on the whole, more probable that both acids and alkalies produce an indirect influence on the kidneys, as we have already had occasion to observe that animal food does in saccharine urine, by a peculiar influence on the chylifacient viscera, or the nutritive materials during their subaction.

Whether the acids and alkalies act indirectly by influencing the stomach, &c., or directly by passing to the bladder.

But alkaline carbonates are no solvent uric acid:

and hence the probable action is an indirect influence.

There is also another class of medicines which have long stood the test, and been proved to possess a truly remedial power in all urinary concretions of the kind before us—I mean astringents. So considerable is their efficacy that De Heucher ascribes to them an expulsory power, in his treatise entitled "Calculus per astringentia pellendus." Their real mode of action has probably been pointed out by Dr. Cullen in a passage in which he has anticipated much of the reasoning of the present day concerning the benefit of alkalies, and has hereby given an additional proof of the strength of his judgement.

Beneficial use of astringents. Supposed by De Heucher to possess an expulsory power: probable mode of action, as pointed out by Cullen.

GEN. IV. SPEC. I. α L. renalis arenosa. Urinary sand.

Speaking of the leaves of the uva ursi, he says that this medicine, "Not only from the experiments of the late De Haen, but also from my own, I have found to be often powerful in relieving the symptoms of calculus. This plant is manifestly a powerful astringent: and in what manner this and other astringents are useful in the cases mentioned may be difficult to explain: but I shall offer a conjecture upon the subject. Their powerful attraction of acid we have mentioned above, and that thereby they may be useful in calculous cases is rendered probable by this, that the medicines which of late have been found the most powerful in relieving the symptoms of calculus are a variety of alkalies, which are known to do this without their acting at all in dissolving the stone."* Their virtue as a stomachic tonic ought also to be taken into consideration as well as their absorbent power.

β L. renalis calculosa. Urinary gravel.

THE SECOND VARIETY of the lithic concretion we are now contemplating, and which, from its tendency to form larger masses is usually denominated GRAVEL, is of far greater importance than the preceding, from the actual pain that is suffered in most cases, and the danger there always exists of the conversion of such nodules into calculi of the bladder.

Sometimes very large and quiet.

One of the largest and most extraordinary instances of this kind is to be found in the museum of the London College of Surgeons, belonging to Mr. Hunter's collection, by whom it was taken from the body of Mrs. ——, a niece of Sir Richard Steele, of the weight of seven ounces and a half. She was never known to have had a nephritic symptom till just before her death, when she was suddenly attacked with a violent pain which produced a fever that destroyed her.

Only three of Marcet's classification of calculi ever found in the kidneys,

Of the eleven classes of urinary calculi enumerated by Dr. Marcet, there are rarely more than three that are found passing through the natural passages of the kidneys, though others are traced occasionally as imbedded in the pelvis or substance of the kidneys. These three

* Mat. Med. Part. II. Chap. I. p. 13.

are the uric, oxalic, and cystic: and of these the two last are very rare productions in comparison with the first. "Out of fifty-eight cases of kidney calculi," says Mr. Brande, "fifty-one were uric, six oxalic, and one cystic." The phosphates seem never to concrete so as to form calculi in the kidneys, for which it seems difficult to assign a reason.

Gen. IV. Spec. I. β L. renalis calculosa. Urinary gravel. uric, oxalic, and cystic.

The uric calculi as voided immediately from the kidneys, are of a yellowish or reddish-brown colour, somewhat hard, and soluble in caustic potash. They exhale the smell of burnt horn before the blow-pipe, and, when heated with nitric acid, produce the peculiar red compound which Dr. Prout has called rosacic acid. The oxalic calculi vary considerably in appearance. They are generally of a grayish-brown colour, and made up of numerous small cohering spherules, and have sometimes a polished surface and resemble hempseeds. They are easily recognised by their insolubility in dilute muriatic acid: and by swelling up under the blow-pipe, and burning into a white ash consisting of pure lime. The cystic calculi have a yellowish colour, and a crystallized appearance; they are soluble in dilute muriatic acid, and in diluted solution of potash. Dr. Wollaston has remarked that when heated in the flame of a spirit-lamp, or by the blow-pipe, they exhale a peculiar fetid smell by which they may readily be characterized*.

Uric calculi, their chemical character.

The usual symptoms by which this variety is marked are those of pressure and irritation: as a fixed pain in the region of the affected kidney, with a numbness of the thigh on the same side, the pain alternating with a sense of weight. The pain is sometimes very acute and accompanied with nausea and deliquium, proving that the calculus has entered the ureter, and is working its way down into the bladder, after which the pain ceases till it reaches the urethra, or, by remaining in the bladder, it becomes encrusted with other materials, and forms a vesicular calculus. During the whole of the passage

Symptoms by which this variety is marked.

* Brande, Journal, &c. Vol. VIII. p. 67.

GEN. IV. SPEC. I. β L. renalis calculosa. Urinary gravel.

from the kidneys the urine is usually high-coloured, and deposits a reddish or reddish-brown sediment, occasionally not unlike the grounds of coffee, and evidently giving proof of the laceration of blood-vessels by the angular points of the calculus. It is a very singular fact, and has been properly noticed by Dr. Heberden, that during the most violent pain at any time endured from this cause, there is rarely any acceleration of the pulse: in the same manner as the torture sustained by the passage of a gall-stone through the gall-ducts produces as little effect upon it. If, however, the flow of the urine be obstructed by the calculus, as sometimes happens, the ordinary constitutional symptoms take place which characterize that affection, as a general sense of uneasiness, heat, thirst, a quickened pulse, and other pyrectic concomitants: sickness at the stomach, costiveness, sleepless nights, and at length coma, intermitting pulse, convulsions, and death: and all this even where the pain or weight in the loins is not peculiarly distressing.

Where the disease proceeds very slowly little inconvenience felt in many cases.

Illustrated.

We have often had occasion to observe that where a morbid change takes place in an organ very gradually, it may proceed to almost any extent without any acute suffering on the part of the patient, and sometimes without any suffering whatever. The same fact not unfrequently occurs in the disease before us, of which a remarkable instance is related by Dr. Marcet, in a patient who died of a dropsy in the chest, without having made any complaint of the state of his urinary organs, though one of his kidneys was found, on dissection, to be distended by a large collection of calculi.

Proximate cause of uric calculi uric acid.

That of oxalic and cystic not so obvious.

Predisposing and occasional causes.

The proximate cause of the formation of uric calculi we have already shewn to be an excess of uric acid: that of the oxalic and cystic is not quite so obvious,—a point, however, of less importance from the infrequency of their occurrence. The predisposing and occasional causes of all of them are too often involved in obscurity. In many persons there is an hereditary tendency to this complaint; general indolence or a sedentary life becomes a predisponent in others; too large an indulgence in fermented

liquors, and the luxuries of the table generally, forms a predisponent in a third class; but the chief cause of this kind we are acquainted with, is a want of constitutional vigour, and especially in the digestive organs; and hence the periods of life in which this disease occurs most frequently are from infancy to the age of puberty, and in declining years: while it is rarely found during the busy and restless term of mature virility.

Gen. IV. Spec. I. β L. renalis calculosa. Urinary gravel.

It is for the same reason that the disease of gravel is so frequently connected with gout, which has a peculiar tendency to debilitate the digestive organs. "The calculous cachexy of the urinary system", says Dr. Swediaur, "often resembles the podagric cachexy, to which indeed it bears a strong analogy. Both are hereditary, occasionally endemic. As gout is for the most part observed in regions abounding in wines, lithia is chiefly traced where malt liquors are the ordinary beverage; and hence in Europe we are not without examples of it, even in infancy. Almost all cases of gout, occurring after the middle of life, are combined with calculous urine; while the last proves at times a metastasis of the first."*

Diathesis approaches that of gout.

Analogy traced out.

The process of treatment must, for the most part, be derived from these causes. As a preventive of that modification of calculus which is by far the most frequent, we have already advised the use of alkalies and alkaline carbonates. Where the digestive organs are weak the diet should be light but generous; warm and bitter tonics will always be found serviceable; the bowels should never be suffered to become costive, and should occasionally be stimulated by brisk purgatives, which tend equally to remove acidities from the stomach, and to stimulate the kidneys to a more healthy action. Indolence and a sedative life must give way to exercise, and especially equitation, which is by far the best kind of exercise for the present purpose, and whatever will tend to promote an increased determination towards the surface, and a frequent glow on the skin will prove a valuable auxiliary: for the skin itself becomes, in this affection,

Process of treatment.

* Nov. Nosol. Math. Syst. Vol. II. 259.

GEN. IV. SPEC. I. Lithia renalis. Renal calculus. Treatment.

though rarely in paruria *mellita*, an outlet for the discharge of a redundancy of acid, as may be observed by the simple experiment of tyeing a piece of paper stained with litmus about the neck; which even in a state of common health, will often be changed to a red colour by the acid thrown off in the ordinary course of perspiration.

Mischievous effects of a luxurious diet exemplified from Magendie.

Of the mischievous effects of a luxurious diet, and the advantage of abstinence M. Magendie has given a very striking example in the case of a merchant of one of the Hanseatic towns who was habitually afflicted with the complaint before us. "In the year 1814 this gentleman", he tells us, "was possessed of a considerable fortune, lived in an appropriate style, and kept a very good table, of which he himself made no very sparing use. He was at this time troubled with the gravel. Some political measure unexpectedly took place which caused him the loss of his whole fortune, and obliged him to take refuge in England, where he passed nearly a year in a state bordering upon extreme distress, which obliged him to submit to numberless privations; but his gravel disappeared. By degrees he succeeded in re-establishing his affairs; he resumed his old habits, and the gravel very shortly began to return. A second reverse occasioned him once more the loss of all he had acquired. He went to France almost without the means of subsistence, when his diet being in proportion to his exhausted resources, the gravel a second time vanished. Again his industry restored him to comfortable circumstances; again he indulged in the pleasures of the table, and had to pay the tax of his old complaint."*

Mariners rarely subject to this disease. Explained.

It may at first sight appear a singular fact, but the remarks just offered will tend to explain it, that mariners are rarely subject to stone or gravel. Mr. Hutchison has published a valuable article upon this subject in one of the volumes of the Medico-Chirurgical Transactions†,

* Recherches Physiologiques et Médicales sur les Causes, les Symptoms et le Traitement de la Gravelle. 8vo. Paris, 1818.

† Trans. of the Medico-Chirurg. Society, Vol. IX.

from which it appears that out of ninety-six thousand six hundred and ninety-seven patients, admitted in the course of sixteen years into the three grand coast hospitals of Plymouth, Haslar, and Deal, not more than eight had laboured under either species of lithia. Whence it appears that the occupation, diet, activity, and regimen of a maritime life are the best preservatives against all such affections: such as an animal aliment largely combined with the alkaline stimulus of muriate of soda; a farinaceous, for the most part, instead of any other vegetable diet; great exercise, and that free exhalation from the skin at night which is so well known to take place among sailors in the royal navy, in consequence of their being compelled to sleep closely together. And, as the disease appears to be equally uncommon in tropical climates, we have here an easy explanation of the cause of its infrequency. In our own country it appears from the tables of the Norwich hospital to be more frequent in Norfolk than in any other county of the same population.

Remedial process during the paroxysm of pain.

It only remains to be observed that during the paroxysm of pain produced by the passage of a calculus through the ureter, our chief object should be to allay the irritation and mitigate the distress. The warm-bath is here a valuable remedy; friction on the loins, with rubefacient irritants combined with narcotics, often afford relief: but the present author has found most benefit from a flannel-swathe wrung out in hot water and folded about the loins; being suffered to remain there for hours wrapped round, to confine the moisture, with an outer swathe of calico or linen. If these do not answer, opium, and in free doses, must be had recourse to.

SPECIES II.

LITHIA VESICALIS.

Stone in the Bladder.

FREQUENT DESIRE OF MAKING WATER, WITH A DIFFICULTY OF DISCHARGE; PENIS RIGID, WITH ACUTE PAIN AT THE GLANS: SONOROUS RESISTANCE TO THE SOUND WHEN SEARCHING THE BLADDER.

GEN. IV. SPEC. II. Vesical stones of a very composite structure: consisting of different nuclei surrounded with an endless variety of materials. Kidney-calculus the most common nucleus: and sometimes comprises the entire stone.

THE substances, vulgarly called stones in the bladder, are, for the most part, of a very composite structure. They originate from a nucleus which may consist of any morbid or foreign material that can accidentally obtain an entrance and a lodgement in the bladder; the body of the calculus being formed out of such constituent parts of the urine as are most easily detached and attracted: which gradually encrust around it, and concrete into a mass for the most part far too large to pass through the urethra.

The most common of these nuclei is a kidney-calculus itself, and consequently a crystallized spherule or nodule of uric acid; and, where the acid is habitually in excess, the coating of the vesicular calculus may consist of this alone or chiefly: but, from the great variety of materials, as earths, alkalies, and other acids besides uric, and sometimes blood and mucus, which enter into the composition of the urine at this time, it is not often that a calculus of the bladder is a crystallization of uric acid alone.

Materials chiefly found arranged by Wollaston into five divisions.

In the introductory remarks upon the present genus, we observed that the different kinds of calculi discovered in the human bladder had been treated of by Dr. Wollaston, as far as they were then known, in a very masterly essay upon this subject, published in the Philosophical Transactions for the year 1797: he has since enumerated them as follows:

1. Uric acid calculus.
2. Fusible, triple, or ammonio-magnesian phosphate.
3. Bone-earth calculus, or phosphate of lime.

4. Mulberry calculus, or oxalate of lime.
5. Cystic oxyde.

Gen. IV. Spec. II. Lithia vesicalis. Stone in the bladder.

The cystic oxyde is not contained in the article above referred to, as not having been discovered at the time: but it has since been detected by the same excellent chemist, and named as above.

Other materials sometimes traced.

We have also observed that various other calculous masses have still more lately been ascertained by the analyses of other experimenters, and that the whole number, as arranged by Dr. Marcet, amounts, in the present day, to eleven or twelve. Their names we have already given, nor is it worth while, in a work devoted to practical medicine, to notice them any further, as they are rarely to be met with in comparison with the five arranged above, and, when met with, will not call for any essential difference in the mode of treatment.

Hence calculi of all forms, sizes, and colours.

In effect, they have been found equally different in composition, form, size, and colour; from the weight of half a drachm to that of several pounds; purple, jasper-hued, red, brown, crystalline, cineritious, versicoloured: in one or two instances covered with down*, apparently produced from the surface of the bladder, from which, as we have already had to observe, hairs are occasionally discharged with the urine†. They have also been found solid, perforated, hollow, compact, crumbling, glabrous, rough, and spinous‡, and, in a few instances, combined with iron§.

Sometimes covered with down:

Sometimes intermixed with iron.

Are sometimes produced very rapidly, and discharged in great numbers. Exemplified.

They seem sometimes to form very rapidly; and, where the patient has already discharged one or two, and the urethra has in consequence become more than ordinarily dilated, they occasionally pass off in great numbers in a short space of time. We have hence, in different professional journals and transactions, accounts of a hundred and twenty voided in the course of three days‖; two

* Bleguy, Zodiac. Ann. IV. Febr. Obs. 4.
† Gen. III. Spec. V. part. in cont.
‡ Bartholin. Act. Hafn. Tom. II. Obs. 85.
§ Act. Erudit. Leips. 1627. p. 332.—Dotæus, Ep. ad Waldschmidt. p. 253.
‖ Eph. Nat. Cur. Dec. III. Ann. V. VI. p. 99.

GEN. IV. SPEC. II. Lithia vesicalis. Stone in the bladder.

thousand in the course of two years *; and three hundred of a pretty large size within the same term †. The largest discharged in this manner, which has ever occurred to me in reading, weighed five ounces. Dr. Huxham describes one instance of such a fact ‡; and another is given in a distinguished foreign miscellany §. By females they have often been discharged of the weight of two ounces and a half; and my excellent friend Dr. Yelloly mentions a calculus of nearly three ounces and a half ‖; in one case we are told of a stone thus evacuated that weighed twelve ounces ¶.

Chemical character of uric calculus.

The general character of the URIC CALCULUS has been given already. Its texture when formed in the bladder is commonly laminated; and, when cut into halves, a distinct nucleus of uric acid is almost always perceptible. Its exterior is generally smoother than that of other calculi, except the calculus of bone-earth, or phosphate of lime **.

Chemical character of fusible calculus.

The appearance of the second or FUSIBLE CALCULUS is generally white, and often resembles chalk in its texture. Strongly heated before the blow-pipe this substance evolves ammonia, and readily fuses; whence the name assigned to it. It often breaks into layers, and exhibits a glittering appearance when broken.

Chemical character of bone-earth calculus.

The third division, consisting of the BONE-EARTH CALCULUS, or phosphate of lime unmixed with any other substance, has a pale-brown smooth surface; and when sawn through is found of a laminated texture, and easily separates into concentric crusts. This calculus is peculiarly difficult of fusion.

Chemical character of mulbery calculus.

The fourth division embracing the MULBERRY CALCULUS, or oxalate of lime, is of a rough and tuberculated exterior, and of a deep reddish-brown or mulberry colour, probably produced by a mixture of blood that has escaped

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* Gründlicher Bericht, von Blatterstein.
† Hildan. Fabric. Cent. I. Obs. 89. ‡ Huxh. Vol. III. p. 42.
§ Sammlung. Med. Wahrnemung. Band. VIII. p. 256.
‖ Trans. of the Medico-Chir. Society. Vol. VI.
¶ Eph. Nat. Cur. Dec. II. Ann. V. Obs. 71.
** Brande's Journal, Vol. VIII. p. 207.

from some lacerated vessel, whence the name assigned to it. The nucleus is generally oxalic, and of renal origin; but it is sometimes uric. It is also frequently enveloped by the fusible calculus.

GEN. IV. SPEC. II. Lithia vesicalis. Stone in the bladder.

The fifth, or CYSTIC CALCULUS has a crystalline appearance but of a peculiar greasy lustre, and is somewhat tough when cut. Its colour is a pale fawn bordering upon straw-yellow. It is very rarely to be met with.

Chemical character of cystic calculus.

Such are the calculi which are principally found in the bladder; and we may readily conceive with what facility they are formed there, when an accidental tendency is given to their formation by a lodgement of any thing that may serve as a nucleus, by noticing the deposites of phosphates of lime and other materials that are perpetually encrusting every substance over which a current of urine is frequently passing; as the public drains in our streets, which are daily exhibiting them in regular crystals.

Formation of the body of a calculus illustrated.

The ordinary causes of renal calculi are necessarily those of vesical calculi, but any local injury or infirmity, which prevents the urine from passing off freely from the bladder, accelerates their formation and enlargement, not only by the confinement it causes but by the decomposition which rest soon produces, in which case it becomes ammoniacal, and a larger portion of the phosphates will be precipitated. And hence, an obstruction in the urethra of any kind, but particularly a diseased prostate, becomes a frequent auxiliary, and sometimes even a primary cause of the formation of a stone without any mischief in the kidneys, or any disordered secretion of urine *. "The bladder", says Sir Everard Home, "never being completely emptied, the dregs of the urine, if I may be allowed the expression, being never evacuated, a calculus formed on a nucleus of the ammoniaco-magnesian phosphate and mucus is produced, when it would not have been produced under other circumstances. This species of stone, or a stone upon such a nucleus, can only be

Ordinary causes of renal calculi those of vesical: but other causes exist dependent upon the state of the bladder.

* Brande's Journal, &c. Vol. VIII. p. 210.

Gen. IV. Spec. II. Lithia vesicalis. Stone in the bladder.

produced where the bladder is unable to empty itself. It may therefore be arranged among the consequences of the enlargement of the middle lobe of the prostate gland."*

Difference of waters in different places do not seem to be a cause.

It does not appear from the experiments or observations of Dr. Marcet, that a difference in the waters of different places is much, if at all, concerned in the production of calculous disorders: nor have we any satisfactory evidence of their being more prevalent in cider than in other countries, notwithstanding the general opinion that they are so. But we are yet in want of sufficient data upon this subject to speak with much decision.

Symptoms of renal calculi the harbingers of vesical.

As the disease of stone in the bladder is very generally a sequel of calculi in the kidneys, the symptoms indicative of the preceding species form, in most instances, the first symptoms of the present. Yet occasionally, from causes we have just pointed out, the concretion commences in the bladder, and the symptoms of an affected kidney are not experienced. One of the first signs of a stone in the bladder is an uneasy sensation at the point of the urethra occurring in conjunction with a discharge of urine that deposites red or white sand, or after having occasionally voided small calculi or fragments of a larger. This pain is sympathetic, and proceeds from the irritation of the prostate or the neck of the bladder, agreeably to a law of nature we have often found it necessary to recur to, which ordains that the extremities of nerves which enter into the fabric of an organ, and particularly of mucous canals, should possess a keener reciprocity of feeling than any intermediate part, and consequently participate with more acuteness in any diseased action. This uneasy sensation at the point of the urethra, is at first only perceived on using any violent or jolting exercise; or in a frequent desire to make water, which is often voided by drops or in small quantities; or, if in a stream, the current stops suddenly while the patient is still conscious that the bladder is not fully emptied, and has still an inclination to

Progress of the disease. Pain at the point of the urethra. Cause explained.

Urine voided in drops, or interruptedly.

* On the Diseases of the Prostate Gland, Vol. I. p. 40.

GEN. IV. SPEC. II. Lithia vesicalis.

evacuate more, but without a power of doing so. As the stone increases in size there is also a dull pain about the neck of the bladder, the rectum partakes of the irritation, and produces a troublesome tenesmus, or frequent desire to go to stool. Where the pain is trifling the urine is often limpid, as the saline or earthy materials from their confinement in the bladder arrange themselves around the growing calculus, and enlarge it by a new coating; but where the irritation is considerable, there is often a mucous sediment in the water, and sometimes a discolouration from blood. The region of uneasiness extends its boundary, the stomach participates in the disquiet, sleepless nights ensue, with pyrexy, anxiety, and dejection of spirits: all which symptoms are increased by exercise of every kind and particularly by equitation. Several of these signs may indicate a primary disease of the prostate or neck of the bladder, but the occasional discharge of calculous fragments or deposite of urine loaded with uric acid or phosphate of lime, are sufficiently pathognomic. It is usual, however, in all such cases, to examine the bladder by a sound, which commonly puts the question beyond all dispute: though if the calculus be lodged in a peculiar sac or the fasciculi of the bladder, or lurk behind some morbid enlargement of the prostate gland, the sound may not detect it, and the experimenter may deceive himself and the patient in respect to the nature of the disease.

Stone in the bladder. Tenesmus. Urine sometimes limpid: sometimes turbid.

How distinguishable from a primary disease of the prostate gland.

Stone not always discoverable by the sound.

The treatment of this malady offers two indications, a palliative and a radical.

Treatment. palliative and radical.

The palliative may be applied to relieve the actual symptoms, and to prevent a further enlargement of the calculus.

Palliative treatment of two kinds.

The symptoms vary greatly in different cases: partly, indeed, from the size of the calculus itself, but quite as much from the constitutional irritability of the bladder and the particular quarter of it in which it is seated. In a few persons, the bladder has possessed so little morbid excitement that stones of considerable magnitude have been found in this organ after death without having produced any very serious inconvenience during life. If the

Plan remedial of the symptoms. Sometimes the disease but little troublesome:

GEN. IV. SPEC. II. Lithia vesicalis. Stone in the bladder.

calculus be immediately seated on the neck of the bladder it is, however, almost impossible for the most impassive not to suffer severely at times. But the stone has sometimes found a fortunate lodgement between the muscular fascicles of the bladder, where it has become imbedded as in a pouch, and a train of morbid symptoms, which have antecedently shown themselves, have gradually disappeared in proportion as this change has been effected.

as when the bladder has little irritability: or the stone has lodged in a pouch. Singular examples of such lodgements.

Mr. Nourse showed to the Royal Society the bladder of a man in which not less than six sacs or bags were in this manner produced by a protrusion of the internal coat of the bladder through the muscular, and which contained altogether nine stones*. The stones are sometimes fixed so firmly that it is impossible to separate them by the forceps in performing the operation of lithotomy, without tearing the bladder or cutting one side of the sac; which last method M. Garangeot informs us he once tried with success. In several other cases, however, that he has described, the vessels of the bladder had spread luxuriantly over the stone, and apparently grown into it; and the extraction was followed by a mortal hemorrhage†. Generally speaking, calculi when seated in pouches of this kind, continue without much disturbance for years, and sometimes for the whole of a man's natural life, of which Dr. Marcet has given various striking examples in his treatise.

How far art may imitate any of these means. Irritability to be taken off.

Art cannot scoop out such convenient receptacles, but it may do something to allay the irritability of the bladder when severely excited, and in this manner palliate the distressing pain that is often endured. This may frequently be accomplished by the warm-bath; by rubefacients impregnated with opium applied to the region of the pubes, and in the course of the perinæum; by cooling aperients and a steady use of sedatives, and particularly of conium. If these do not answer we must have recourse to opium, which will often succeed best and with least inconvenience to the constitution if introduced into the anus in the form of a suppository.

* Mem. 468. Sect. 3. † Mem. de l'Acad. de Chirurg. Tom. 2.

Our next intention should be to prevent, as far as possible, an augmentation of the calculus already existing in the bladder.

Gen. IV. Spec. II. Lithia vesicalis. Stone in the bladder.

In order to accomplish this, it will be necessary to inform ourselves of its chemical constituents, for otherwise any method we may propose will probably do harm. From the remarks already made, it is obvious that the chief constituent principles of the calculi in the bladder, like those in the kidneys, are uric acid and bone-earth or phosphate of lime. If the former predominate the urine will often throw down a precipitate or incrustation of red sand, if the latter, of white sand: and in the former case, as there is an excess of uric acid, our remedial forces must be derived from the alkalies and alkaline preparations to which we have already adverted under the preceding species: in the latter case, as there is, in all probability, a deficiency of acid, we must have recourse to an opposite mode of treatment, and employ the mineral and vegetable acids, with a diet chiefly composed of vegetables as recommended above under renal calculus.

Plan for preventing the enlargement of the calculus. Its chemical character must be first known by the precipitate or crystallization of the urine. Where alkalies may be useful: where acids.

But the calculus may consist of both, for it may exhibit, and often does, a nucleus of crystallized uric acid with laminæ of phosphate of lime, magnesia, or some other substance: or, by carrying either of the above processes to an extreme, we may convert one morbid action into another. For if, by the use of alkalies, we diminish too much the secretion of uric acid, we may let loose the calcareous earth, which, in a healthy proportion, it always holds in solution, and hereby increase the vesical calculus by supplying it with this material; while, on the contrary, by an undue use of acids where these are required to a certain extent, we may obtain a secretion of uric acid in a morbid excess, and augment the stone in the bladder by a crystallization of an opposite kind. Hence a very considerable degree of skill and caution is requisite in the mode of treatment, and the character of the urine should be watched perpetually. Nor, where the calculus is of a still more composite kind, can either of these plans be attended with all the success they seem to ensure, so that

The calculus may be complicated of both: hence great caution necessary as well as skill.

GEN. IV. SPEC. II. Lithia vesicalis.

the augmentation will sometimes be found to proceed in spite of the best directed efforts.

Stone in the bladder. Treatment. Colchicum autumnale:

From the success that has attended the use of the colchicum *autumnale* in many cases of gout, and the tendency there is in many cases of this disease to form calculi in the joints, Mr. Brande has ingeniously thrown out the idea of trying the virtue of the colchicum in the disease before us, and hints that he has received from one quarter a very flattering account of its success, though not sufficiently precise for publication. If the reasoning pursued in examining the powers and effects of the colchicum in that part of the present work which is allotted to the history of gout be correct, we can have little hope of any permanent advantage from its use in respect to the lithic concretions before us. It has there appeared that the colchicum does not act as a preventive, but as an antidote, during the prevalence of a paroxysm. Nor does it act in this last way in all paroxysms, but chiefly, if not solely, in those of the regular form of gout, in which the general state of the constitution is sound and vigorous, while in atonic gout, it seems from the violence of its effects, not unfrequently to add to the evil. Yet it is in this last modification of gout that calculi are only found to concrete in the joints: the deposite rarely, if ever, taking place, till the constitution has been seriously shaken by a series of attacks, evidencing, as in the case of similar deposites in the coats of the vessels and the parenchyma of various organs in old people, a general torpitude and debility of the excernent system. Upon which subject the reader may turn to the genus OSTHEXIA * in a preceding Order of the present Class.

why not likely to be useful.

Azotic regimen of Magendie.

There is something perhaps more plausible in the remedial regimen proposed by M. Magendie, who, on reflecting that azote is an essential constituent of urea and uric acid, advises that the patient be confined to food that possesses no sensible portion of azote, as sugar, gum, oil-olive, butter, and a vegetable diet generally †: thus treat-

* Suprà, p. 348. † Recherches Physiologiques et Médicales, &c. ut suprà.

ing it with a dietetic course directly the reverse of what is now generally proposed for paruria *mellita*, or diabetes.

GEN. IV. SPEC. II. Lithia vesicalis. Stone in the bladder. Treatment.

From the whole that has been advanced not only under the present genus, but also under much of the preceding, it is obvious that the soundness of the urine keeps pace, in a considerable degree, with the soundness of the stomach and its auxiliary organs, and is dependent upon them: and hence in calculous concretions of every kind it is of the utmost importance that the chylifacient viscera, and the whole course of the intestinal canal, should be kept in as healthy a state as possible.

Soundness of urine generally connected with soundness of stomach and adjoining organs.

Astringents and bitters offer to us the best remedies for this purpose. From the supposed absorbent power of the former, Dr. Cullen, as we have already seen, ascribes to them much of the peculiar benefit resulting from the use of alkalies and magnesia, independently of their decided virtue as a tonic: nor ought we, while upon this subject, to overlook the advantage which, in calculi of uric acid at least, the same distinguished writer asserts that he derived from the use of soap, which he ascribes entirely to its correcting acidity in the stomach *; thus acting the same part as magnesia, and in many cases with greater potency.

Hence tonics of use: particularly bitters.

If such be the difficulty of preventing a calculus already formed in the bladder from enlarging, we may readily see how hopeless must be every attempt at dissolving the matter that has already become crystallized or concreted. Calculi of uric acid will dissolve in caustic alkalies, but in no alkalies of less power; nor can those of the phosphates be acted upon by acids of any kind, except in a state far too concentrated for medical use. "These considerations", says Mr. Brande, "independently of more urgent reasons, show the futility of attempting the solution of a stone of the bladder by the injection of acid and alkaline solutions. In respect to the alkalies, if sufficiently strong to act upon the uric crust of the calculus, they would certainly injure the coats of the bladder;

Solution of stone in the bladder impracticable, and why.

* Mat. Med. Part. II. Chap. x. p. 402.

GEN. IV. SPEC. II. Lithia vesicalis. Stone in the bladder. Treatment.

they would also become inactive by combination with the acids of the urine, and they would form a dangerous precipitate from the same cause. The acids, even when very largely diluted, and qualified with opium, always excite great irritation. They cannot, therefore, be applied strong enough to dissolve any appretiable portion of the stone, and the uric nucleus always remains as an ultimate obstacle to success."* The greatest impediment of all, however, consists in the difficulty of ascertaining the nature of the surface of the stone that is to be acted upon, and the diversity of substances of which its various laminæ very frequently consist; insomuch that had we glasses that could give us an insight into the bladder and unfold to us the nature of the first layer, and could we even remove this superficial crust by a solvent of one kind, we should be perpetually meeting with other crusts that would require other lithontriptics; while the very means we employ to dissolve them, by decomposing the principles of the urine, would build up fresh layers faster than we could hope to destroy those that have already concreted.

Other difficulties to be encountered.

The most celebrated lithontriptics compounded of demulcents and sedatives as well as caustics, and hence proved palliative, and were supposed to dissolve the stone. These properties apply to Stephens's medicines.

In truth if we examine the most famous lithontriptics that have had their day, we shall find that by far the greater number of them were calculated to deceive either their own inventors, or the public, by a palliative rather than a solvent power. Some of them were oleaginous or mucilaginous; others, that contained a considerable portion of alkali, contained also some narcotic preparation; while a third sort seem to have acted by a diluent power alone, in consequence of being taken into the stomach or injected into the bladder in a very large quantity; and by these means all had a tendency to appease the irritation. Even Mrs. Stephens's rude and operose preparations, which exercised so much of the analytical skill of Dr. Hales, and Dr. Hartley, and Dr. Lobb, and Dr. Jurin, and many other celebrated characters of their day, were combined with opium when the patient was in pain,

* Journal, Vol. VIII. p. 215.

and with aperients when he was costive; and through their entire use, with an abstinence from port wines and other fermented liquors, salt meats, and heating condiments, and with rest and a reclined position instead of exercise: and with these auxiliaries there is no great difficulty in supposing she might often succeed in allaying a painful fit of stone or irritation of the bladder, whatever may be the talismanic virtue of her egg-shells, and pounded snails, and best Alicant soap, and cresses, and burdock, and parsley, and fennel, and hips and haws, and the twenty or thirty other materials that held a seat in the general council *.

GEN. IV. SPEC. II. Lithia vesicalis. Stone in the bladder. Treatment.

How far filling the bladder with sedative or demulcent injections may succeed in diminishing irritation and alleviating pain, has not perhaps been sufficiently tried; but from the supposed success of many of the old lithontriptics employed in this way, and whose virtue can be ascribed to no other cause, it is a practice worth adventuring upon in the present age of physiological experiments. When, however, there is much disease of the prostate or bulb of the urethra, the attempt should be desisted from, but wherever the sound can enter without much pain, we need not be afraid of increasing the irritation. This operation is of very ancient date, and of equally extensive range, as appears from a brief account, published in a professional journal of considerable merit, of the manner in which it is performed in the present era, and has been from time immemorial in the dominions of Muscat, beyond the mountains of Sohair in Arabia. The instrument employed is a catheter of gold made long enough to pass directly into the bladder, so as to avoid injuring any part of the urethra with such solvent as might be had recourse to. The usual form it appears, and I notice it for the purpose of confirming the remark I have made upon the nature of such lithontriptics as have been most in vogue in every age, consists of a weak ley of alkali or alkaline ashes, united with a certain

Sedative and demulcent injections.

Such experiments of very ancient date:

and still practised in Arabia.

Usual injection employed there.

* See a full account of them in Edin. Med. Essays, Vol. v. Part II. Art. LXIX.

GEN. IV. SPEC. II. Lithia vesicalis. Stone in the bladder. Treatment.

proportion of mutton suet and opium *. And when we are gravely told that this preparation never fails to *dissolve* the stone, we are at no loss to settle the account upon this subject, and can trace the real cause of whatever degree of ease may have been derived from such an injection, and can allow that even the alkali itself, if not in too concentrated a state, may have been of occasional advantage. MM. Prevost and Dumas have since tried an application of the galvanic fluid, for the same purpose, but it does not appear with a success that is likely to render such an attempt popular.

Galvanic fluid tried.

Extraction of the stone. How far this may be accomplished by dilating the urethra. Has sometimes succeeded in women.

When, however, all these means of relief fail, and the general health is worn out by a long succession of pain and anxiety, nothing remains but the operation of extraction. The shortness and expansibility of the urethra in women which allows, as we have already seen, a passage for calculi of a considerable calibre to pass naturally, has suggested an idea of the possibility of introducing a stone forceps into the female bladder so as to supply the place of lithotomy. The first hint of this kind that has occurred to me, is to be found in the Gallicinium Medico-practicum of Gockel, published at Ulm in 1700. It was afterwards taken up, perhaps originally started, by Mr. Bromfield, who ingeniously advised that the urethra should, for this purpose, be dilated by forcing water through the gut of a fowl introduced into the urethra as an expansile canula. Mr. Thomas has since, by the use of a sponge-tent gradually enlarged for the purpose, succeeded in introducing his finger into the bladder, and bringing away an ivory ear-pick which had been incautiously used as a catheter, and had slipped into the cavity of this organ †: and Sir Astley Cooper has still more lately devised an instrument that by a gradually enlarging pressure, by means of its opening blades, will accomplish the same object in a single night, or even a few hours, and has rendered an extraction of calculi from

Dilating instrument of Sir Astley Cooper.

* Edin. Med. Comm. Vol. III. p. 334.

† Trans. of the Medico-Chir. Society, Vol. I. p. 124.

the female bladder, a comparatively simple and easy operation, attended indeed with little inconvenience.

GEN. IV. SPEC. II. Lithia vesicalis. Stone in the bladder. Treatment. Civiale's comminuting machine.

M. Civiale has taken advantage of this wonderful power of dilation in the urethra, and has endeavoured to avail himself of it in males as well as in females; not, indeed, with a view of bringing away a calculus of any considerable size through the male urethra in an *entire* state, but by grinding, or, as we should now perhaps call it, *Macadamising* the stone into granules so fine as to pass without difficulty. The instrument, and indeed the whole contrivance for this purpose is highly ingenious, whatever becomes of its general success, and has justly obtained a panegyric from MM. Chaussier and Percy, appointed as a committee to examine into its pretensions by the Royal Academy of Sciences. It consists of a *straight* and hollow cylinder, of a diameter as large as the urethra can be made to admit; through this tube, when it has entered the bladder, is introduced another instrument, made of steel and consisting of three elastic and curved claws capable of seizing and fixing the stone when projected. It consists also, besides such pincers, of a stillet of the same metal, at the extremity of which is a circular saw, which can be worked upon the stone, and abrade it, till it is entirely comminuted, without injuring the bladder. It has already been tried on the dead, and in a few instances on the living body: but its general success is still doubtful. "Yet", observe the Committee, "notwithstanding its inefficacy in some cases, and the difficulty of its application in others, it cannot fail to form an epoch in the annals of the healing art, nor to be regarded as one of its most ingenious and precious resources." Some such machine seems to have been suggested by one or two individuals antecedently, but Dr. Civiale is unquestionably the first who has produced and made trial of it.

This, however, is a method that can never be applied to males, nor even successfully to females, except where the calculus is comparatively of small dimensions, or the meatus is so far dilated by the passage of former calculi as to render it unnecessary. In all other cases lithotomy

Lithotomy.

GEN. IV. SPEC. II. Lithia vesicalis. Stone in the bladder. Treatment. Enormous weight of calculi in some cases.

offers the only mean of removing the indissoluble stone from the bladder; and for the various modes in which this is performed, the reader must consult the writers on practical surgery.

Calculi thus extracted have been found of all weights and bulks. A stone from a quarter of a pound to half a pound may, perhaps, be regarded as the ordinary average: but they have sometimes grown to a much larger size, and have still been safely extracted. The largest for which lithotomy seems at any time to have been performed in this country, weighed forty-four ounces, and was sixteen inches in length. The operation was performed by Mr. Cline *, but the stone could not be brought away, and the patient died a few days after †. In a foreign journal of high reputation, we have an account of a calculus found in the bladder after death, that weighed four pounds and a half, or seventy-two ounces, and seems to have filled nearly the whole of its cavity ‡.

* On Sir David Ogilvie.

† Phil. Trans. year 1809. By Sir James Earle, presented to the College of Surgeons.

‡ Bresl. Sammlung. Band. II. 1724. 434. 11.

CLASS VI.

ECCRITICA.

ORDER III.

ACROTICA.

Diseases affecting the External Surface.

DEPRAVITY OF THE FLUIDS OR EMUNCTORIES THAT OPEN ON THE EXTERNAL SURFACE; WITHOUT FEVER, OR OTHER INTERNAL AFFECTION, AS A NECESSARY ACCOMPANIMENT.

Class VI. Order III.

Origin of ordinal term.

Excretories of the skin their extensive use:

Acrotica is a Greek term, from ἄκρος, "summus", whence ἀκρότης, ητος, "summitas", "cacumen". The excretories of the skin form a most important outlet of the system, and although the fluid they secrete is, in a state of health, less complicated than that of the kidneys, under a variety of circumstances it becomes more so. It is to this quarter that all the deleterious or poisonous ferments produced by eruptive fevers are directed by the remedial power of nature, as that in which they can be thrown off with least evil to the constitution. By the close sympathy which the surface of the body holds with the stomach, the heart, the lungs, and the kidneys, its excretories are almost perpetually varying in their action, and still more so from their direct exposure to the change-

and sympathy with other organs:

Class VI. Order III. Acrotica. Diseases affecting the external surface.

able state of the atmosphere: in consequence of which they are one moment chilled, torpid, and collapsed, and perhaps the next violently excited and irritated: now dry and contracted, now relaxed and streaming with moisture; now secreting their natural fluid alone, and now charged with acrimonies of every kind, acid, alkaline, and saburral: and sometimes with a load of gluten or calcareous earth that hardens into horn or shell.

the fluids they contain hence constantly affected.

Their mouths affected by external abrasion.

But the mouths of the cutaneous exhalants are in their own nature peculiarly delicate and tender; and hence the necessity of their being covered by the epithelium of a fine cuticle, which defends them in a considerable degree from the rudeness of external impressions or irritants with which the air is impregnated*. This defence, however, they frequently lose; often from external violence, and often also from the acrimony or roughness of the materials that are thus transmitted to them, and which excoriate as effectually as friction, a keen frosty north-east wind, or the direct rays of a tropical sun. And at times the absorbents of the skin are torpid or weak in their action; and the finer parts only of the fluids that are secerned are imbibed and carried off, while the grosser parts remain and accumulate in the cutaneous follicles, and become acrimonious from decomposition. And hence a great variety of superficial eruptions, papulous, pustulous, and ichorous, squamose, or furfuraceous. And not unfrequently there is a constitutional irritability of the skin which not only renders it peculiarly liable to be excited by small causes in every part, but to sympathize in the morbid action through its whole extent in whatever part it may commence: and hence the spread of eruptions to a greater or less extent, sometimes, indeed, over the entire surface. A knowledge of this fact is of great importance, for we can often avail ourselves of it in the treatment of constitutional or organic affections of considerable severity or danger, and by exciting a

Sometimes by torpitude.

Sometimes peculiarly irritable.

Sometimes sympathize with remote morbid actions.

This an important doctrine.

* Lectures on the general Structure of the Human Body, and on the Anatomy and Functions of the Skin, &c. By Thomas Chevalier, F.R.S. &c. Lect. VI. VII. Lond. 1823.

temporary irritation on the skin, mitigate or entirely subdue the original malady. All the benefits derived from the eruptions produced by the tartar-emetic ointment *, blisters, sinapisms, and the entire host of counter-irritants as applied to the surface, are dependent upon this extensive and important principle in pathology.

Class VI. Order III. Acrotica. Diseases affecting the external surface. And often capable of being acted upon with great advantage. Hence a great variety of distinct complaints.

From these sources of affection a variety of complaints must necessarily take their rise, none of them perhaps fatal to life, but many of them peculiarly troublesome and obstinate. They may be arranged under the following genera:

I.	EPHIDROSIS.	MORBID SWEAT.
II.	EXANTHESIS.	CUTANEOUS BLUSH.
III.	EXORMIA.	PAPULOUS-SKIN
IV.	LEPIDOSIS.	SCALE-SKIN.
V.	ECPHLYSIS.	BLAINS.
VI.	ECPYESIS.	SCALL. TETTER.
VII.	MALIS.	CUTANEOUS VERMINATION.
VIII.	ECPHYMA.	CUTANEOUS EXCRESCENCE.
IX.	TRICHOSIS.	MORBID HAIR.
X.	EPICHROSIS.	MACULAR SKIN.

Most of these genera contain numerous species, many of which, though by no means all, form a part of Dr. Willan's arrangement, and have been described by himself or my late excellent friend Dr. Bateman, of whose labours I shall avail myself as far as they may answer the present purpose. By Professor Frank they have been marshalled under the term IMPETIGINES, employed, but with a latitude never assigned it before, as the name of a class, divided into the two orders of MACULOSÆ and DEPASCENTES.

Impetigines of Frank an entire class.

* Letter to C. H. Parry, M.D., F.R.S., on the influence of Artificial Eruptions in Certain Diseases, &c. By Edward Jenner, Esq. M.D. 4to. Lond. 1822.

GENUS I.

EPHIDROSIS.

Morbid Sweat.

PRETERNATURAL SECRETION OF CUTANEOUS PERSPIRATION.

Gen. I. Matter of sweat and perspiration nearly the same. Whether there be persons who never perspire. All warm-blooded animals perspire or have some vicarious discharge. Instanced in the dog-kind. Cutaneous exudation of lizards. Cold-blooded animals secrete but a small quantity of fluid. Those who perspire little, need but little supply of food.

Ephidrosis (ἐφίδρωσις) is a Greek term for "sudor". The matter of sweat and that of insensible perspiration are nearly the same; the former consisting of the latter with a small intermixture of animal oil. It is affirmed by some writers that there are persons who never perspire. This demands ample proof; for experience teaches us that all warm-blooded animals either perspire by the skin, or have some vicarious evacuation that supplies its place, as in the case of the dog-kind, in which an increased discharge of saliva seems to answer the purpose; though in violent agony, I have known a Newfoundland dog thrown into a sweat that has drenched the whole of his thick and wavy hair. In cold-blooded animals we sometimes find partial secretions, as in the lizards, the exudation from some of which, particularly the lacerta *Geitja* of the Cape of Good Hope, is highly acrid; and as it touches the hands and feet of men occasionally produces dangerous gangrenes. Generally speaking, however, cold-blooded animals secrete but a small quantity of fluid from the surface, and consequently suffer but little exhaustion or diminution of weight, and can live long without nourishment: and it is hence probable that, among mankind, those who throw off but a small quantity of halitus may exist upon a very spare supply of food; which may afford a solution to many of the wonderful stories of fasting persons, most of whom seem to have passed sedentary and inactive lives, recorded in the scientific journals of different countries, a subject we

have already discussed *: for the matter of insensible perspiration is calculated, upon an average, as being daily equal in weight to half the food introduced into the stomach, in the course of the day. Thus if a man of good health and middle age, weighing about 146 pounds avoirdupois, eat and drink at the rate of fifty-six ounces in twenty-four hours, he will commonly be found to lose about twenty-eight ounces within the same period by insensible perspiration: sixteen ounces during the two thirds of this period allotted to wakefulness, and twelve ounces during the remaining third allotted to sleep.

GEN. I. Ephidrosis. Morbid sweat. Proportion of insensible perspiration to the food.

It sometimes happens that this evacuation is secreted in excess, and becomes sensible, so as to render the whole, or various parts of the body, and especially the palms of the hands covered with moisture, without any misaffection of the system. It is to this species that the term ephidrosis has been usually applied and limited by nosologists. Sauvages, however, has employed it in a wider signification, so as to include various other species, and perhaps correctly; though Cullen inclines to regard all but the first as merely symptomatic of some other complaint.

Sometimes secreted in excess, and hence the present genus.

The following appear to be those which are chiefly entitled to a specific rank:

1. EPHIDROSIS PROFUSA. PROFUSE SWEAT.
2. ———— CRUENTA. BLOODY SWEAT.
3. ———— PARTIALIS. PARTIAL SWEAT.
4. ———— DISCOLOR. COLOURED SWEAT.
5. ———— OLENS. SCENTED SWEAT.
6. ———— ARENOSA. SANDY SWEAT.

* Vol. I. Cl. I. Ord. I. Limosis *aspera*, p. 116.

SPECIES I.

EPHIDROSIS PROFUSA.

Profuse Sweat.

CUTANEOUS PERSPIRATION SECRETED PROFUSELY.

GEN. I. SPEC. I. Pathology.

THIS is commonly a result of relaxed fibres: the mouths of the cutaneous exhalants being too loose and patulous, and the perspirable fluid flowing forth copiously and rapidly upon very slight exertions, sometimes without any exertion at all; as we have already seen the urine flows in paruria *aquosa*, and the serum in various species of dropsy. It is the hyperhydrosis of Swediaur.

In relaxed frames sweating produced by slight exertions.

Hyperhydrosis of Swediaur.

There is here, generally speaking, less solution of animal oil than in perspiration produced by exercise or hard labour*: but from the drain that is perpetually taking place, no animal oil accumulates, and the frame is usually slender. Corpulent persons also perspire much, but this is altogether from a different cause, being that of the weight they have to carry, and the labour with which breathing and every other function is performed in consequence of the general oppression of the system. Here also an extenuation of the frame would soon follow, but that, from the peculiar diathesis which so readily predisposes to the formation of fat, the supply is always equal to, and for the most part continues to exceed the waste, unless a more than ordinary course of exertion be engaged in.

Why copious in corpulent persons.

In persons of relaxed fibres, but whose general health is sound, I have frequently perceived that there is no particular liability to catch cold, notwithstanding this tendency to perspiration, and have very often seen it suddenly checked without any evil: such is the wonderful effect of an established habit. But the moment the general health suffers, or the system becomes seriously weakened by its

Those who perspire much, not always peculiarly liable to catch cold, and why.

* Büchner, Diss. de Sudore Colliquativo. Hal. 1757.

continuance, the sweat is apt to become colliquative, and to terminate in a tabes or decline*.

Gen. I. Spec. I. Ephidrosis profusa. Profuse sweat.

Tulpius gives a case of its continuing for seven years †. Astringents of all kinds have been tried, but with variable effects. Dr. Percival relied chiefly on bark; De Haen employed the white agaric ‡, and in the Journal de Medicine §, the same medicine is recommended under the name of fungus *laricis*; it is the boletus *laricis* of the present day. It was given in the form of troches and pills. Cold sea-bathing, and the mineral acids, with temperate exercise, light animal food, and the use of a hair matrass instead of a down bed at night, have proved successful on many occasions, and form the best plan we can adopt.

The diathesis often pertinacious, and changed with difficulty. Medical treatment.

SPECIES II.

EPHIDROSIS CRUENTA.

Bloody Sweat.

CUTANEOUS PERSPIRATION INTERMIXED WITH BLOOD.

Gen. I. Spec. II.

This species has not been very commonly described by nosologists; but the cases of idiopathic affection are so numerous and so clearly marked by other writers that it ought not to be passed over ‖.

This species hitherto rarely described.

We have noticed a sympathetic and vicarious affection of this kind under the genus MISMENSTRUATION ¶, and have there observed that the cutaneous exhalants, in such instances, become enlarged in their diameter, and suffer red blood or a fluid of the appearance of red blood to pass through them. In cases of extreme debility from other causes, as in the last and fatal stage of atonic fevers, or in

Pathological explanation.

* See Vol. III. Cl. III. Ord. IV. Gen. IV. Spec. IV.
† Lib. III. Cap. 42.
‡ Rat. Med. P. XII. Cap. VI. § 6.
§ Tom. XLVII.
‖ Ploucq. Init. VII. 316.
¶ Vol. III. p. 62.

GEN. I. SPEC. II. Ephidrosis cruenta. Bloody sweat.

sea or land scurvy * blood has been known to flow from the cutaneous exhalants in like manner, evidently from weakness, and a relaxation of their extremities, in connexion perhaps with a thinner or more dissolved state of the blood itself. None of these, however, are idiopathic affections. When the discharge shows itself as a primary disease, the cause has generally been some violent commotion of the nervous system forcing the red particles into the cutaneous excretories, rather than a simple influx from a relaxed state of their fibres. And hence it has taken place occasionally during coition †; sometimes during vehement terror; and not unfrequently during the agony of hanging or the torture ‡. It is said also to have occurred in some instances in new-born infants §, probably from the additional force given to the circulation, in consequence of a full inflation of the lungs accompanied with violent crying.

Under what states of body the species occurs, and from what causes.

SPECIES III.

EPHIDROSIS PARTIALIS.

Partial Sweat.

CUTANEOUS PERSPIRATION LIMITED TO A PARTICULAR PART OR ORGAN.

GEN. I. SPEC. III. Singular examples of abnormal perspiration.

THERE are some persons who rarely perspire, others who perspire far more freely from one organ than another as the head, or the feet, or the body. Such abnormities rather predispose to morbid affections, than are morbid affections themselves. Sauvages, in illustration of the present species, quotes a case from Hartmann, of a woman who was never capable of being thrown into a sweat either

* N. Act. Nat. Cur. Vol. IV. Obs. 41.—Bresl. Samml. 1725. I. p. 183.

† Paulini, Cent. III. Obs. 46.—Eph. Nat. Dec. II. Ann. VI. Appx. pp. 4. 45. 55.

‡ Bartholinus, Epist. I. p. 718.

§ Eph. Nat. Cur. Dec. II. Ann. X. Obs. 65.

by nature or art in any part of her body except when she was pregnant, at which time she perspired on the left side alone *. Schmidt has noticed a like anomaly †.

Gen. I. Spec. III. Ephidrosis partialis. Partial sweat. Explanation.

In this last case it is probable that the kidneys became a substitute for the action of the cutaneous exhalants, as we see they do on various occasions, as when their mouths become collapsed from the chilly spasm that shoots over them on plunging into a cold bath, or in a fit of hysterics.

The sweat thus discharged from a partial outlet, is frequently fetid, as under the fifth species of the present genus; and, where it is constitutional, it is often repelled with great danger to some more important organ.

SPECIES IV.

EPHIDROSIS DISCOLOR.

Coloured Sweat.

CUTANEOUS PERSPIRATION POSSESSING A DEPRAVED TINGE.

Gen. I. Spec. IV. This species how produced.

Sweat is often tinged with a deeper yellow than is natural to it from a resorption of bile into the blood-vessels; and, as we have already seen, it is sometimes intermixed with blood from violence, or a relaxed state of the cutaneous exhalants. And where these, or causes like these, co-operate, we can readily account for the various colours it has sometimes exhibited as green, black, blue, saffron, or ruby ‡, in the language of Professor Frank, "color nunc pallidè flavescens, nunc lacteus, vel croceus, sanguineus, ac interdum subviridis, cœruleus, aut ater" §;

* Hartmanni, De Sudore unius lateris, 4to. 1740.

† Collect. Acad. Vol. III. p. 577.

‡ Swediaur. Nov. Nos. Meth. Syst. I. 219.

§ De Cur. Hom. Morb. Epit. Tom. v. p. 27. Mannh. 8vo. 1792.

GEN. I. SPEC. IV. Ephidrosis discolor. Coloured sweat.

examples of all which are referred to in the volume of Nosology. We see, indeed, the whole of these hues produced daily under the cuticle from the extravasation of blood, according as the effused fluid is more or less impregnated with the colouring matter of the blood, and the finer and more limpid parts are first absorbed and carried off. It is possible also that in some of the cases referred to, the stain may have been produced by inhaling a vapour impregnated with metallic corpuscles or some other pigment; and especially when working in metallurgical trades or quicksilver mines.

SPECIES V.

EPHIDROSIS OLENS.

Scented Sweat.

CUTANEOUS PERSPIRATION POSSESSING A DEPRAVED SMELL.

GEN. I. SPEC. V. This species gives rise to a variety of odours.

THE varieties that have been chiefly noticed are those of a sulphureous scent; of a sour scent; of a rank or fetid scent; of a violet *, and of a musky scent †. The rank or fetid scent is sometimes partial; being only evacuated from particular organs as the feet and axillæ. De Monteaux, however, has found the same thrown off generally ‡: and as a symptom in atonic fevers it must have been witnessed by most practitioners, as also in several sordid cutaneous eruptions. In fevers, moreover, we frequently meet with a secretion of sour perspiration, which, in a few instances, has had the pungency of vinegar.

Mode of treatment.

When such smells accompany diseases they usually cease on the cessation of the disease which gives rise to them. Where they are habitual they often depend upon a mor-

* Paullini, Cent. I. Obs. 21.—Eph. Nat. Cur. Dec. II. Ann. V. Appx. p. 9.

† Id. Dec. III. Ann. IX. X. Obs. 96.

‡ Maladies de Femmes, Tom. II.

bid state of the stomach, or of the cutaneous excretories; and will often yield to a course of aperients or alterants, a frequent use of the warm, and, when the constitution will allow, of the cold-bath, and such exercise as shall call forth a copious discharge of perspirable matter, and free the cutaneous follicles or orifices of whatever olid materials may lurk there.

GEN. I. SPEC. V. Ephidrosis olens. Scented sweat. Treatment.

Many of these, however, are often dependent upon the diet or manner of life. Thus the food of garlic yields a perspiration possessing a garlic smell: that of peas a leguminous smell, which is the cause of this peculiar odour among the inhabitants of Greenland; and acids a smell of acidity. Among glass-blowers, from the large quantity of sea-salt that enters into the materials of their manufacture, the sweat is sometimes so highly impregnated, that the salt they employ and imbibe by the skin and lungs, has been seen to collect in crystals upon their faces. A musky scent is not often thrown forth from the human body, but it is perhaps the most common of all odours that escape from the skin of other animals. We discover it in many of the ape kind, and especially in the simia *Jacchus;* still more profusely in the opossum, and occasionally in hedge-hogs, hares, serpents, and crocodiles. The odour of civet is the production of the civet-cat alone; the viverra *Zibetha*, and viverra *Civetta* of Linnéus, though we meet with faint traces of it in some varieties of the domestic cat. Among insects, however, such odours are considerably more common, and by far the greater number of them are of an agreeable kind, and of very high excellence; for the musk scent of the cerambix *moschatus*, the apis *fragrans*, and the tipula *moschifera*, is much more delicate than that of the musk quadrupeds: while the cerambix *suaveolens*, and several species of the ichneumon yield the sweetest perfume of the rose; and the petiolated sphex a balsamic ether highly fragrant, but peculiar to itself.

Scented vapour issuing from other animals.

SPECIES VI.

EPHIDROSIS ARENOSA.

Sandy Sweat.

CUTANEOUS PERSPIRATION CONTAINING A DISCHARGE OF SANDY OR OTHER GRANULAR MOLECULES.

GEN. I. SPEC. VI. Pathological explanation.

As the odorous particles of both animal and vegetable food are sometimes absorbed by the lacteals and impregnate the matter of perspiration, so at times are the more solid particles of the materials employed in handicraft trades absorbed by the lungs, and equally thrown forth upon the surface. This, as observed under the last species, is particularly the case with glass-blowers, upon whose forehead and arms salt is often seen to collect and crystallize in great abundance, from the quantity of this material which they employ in the manufacture of glass, and its diffusion through the heated atmosphere of the workshop in minute and imperceptible particles.

Exemplified in glass-blowers.

Red crystallized sandy sweat.

But a reddish sandy material is occasionally found to concrete on the surface of the body under other circumstances, and which cannot be charged to any material volatilized in the course of business. Bartholin, Schurig *, Mollenbroek †, and various other writers have given instances of this kind of crystallization, which seems to consist in an excess of free uric acid, translated from the kidneys to the skin by an idiopathic sympathy, and forming red sand on the surface, as it probably would otherwise have done in the bladder or the urinal. It is possible, indeed, that a man may hereby escape from the fabrication of an urinary calculus, or stone in the bladder: and were such a transfer at all times in our power, we should gladly avail ourselves of it in many cases of a lithic diathesis, and employ it as a preventive of urinary concretions. When the sand is troublesome from the quantity collected, the alkaline and other medicines recommended under lithia *renalis* ‡ will easily remove it §.

How accounted for.

How to be remedied.

* Litholog. p. 235. † De Vasis, Cap. XIII.
‡ Hist. Anat. Cent. I. 34. § Suprà, p. 511.

GENUS II.

EXANTHESIS.

Cutaneous Blush.

SIMPLE, CUTANEOUS, ROSE-COLOURED EFFLORESCENCE, IN CIRCUMSCRIBED PLOTS, WITH LITTLE OR NO ELEVATION.

Gen. II. Origin of generic term.

EXANTHESIS is a Greek compound from ἐξ "extra" and ἀνθέω "floreo", superficial or cutaneous efflorescence, in contradistinction to ENANTHESIS in Class III. Order IV. rash-fever or "efflorescence springing from within".

This genus affords but one known species, the specific name for which is taken from Dr. Willan:

1. EXANTHESIS ROSEOLA. ROSE-RASH

SPECIES.

EXANTHESIS ROSEOLA.

Rose-Rash.

EFFLORESCENCE IN BLUSHING PATCHES, GRADUALLY DEEPENING TO A ROSE-COLOUR, MOSTLY CIRCULAR, OR OVAL; OFTEN ALTERNATELY FADING AND REVIVING; SOMETIMES WITH A COLOURLESS UMBO; CHIEFLY ON THE CHEEKS, NECK, OR ARMS.

Gen. II. Spec. Specific term in what sense used formerly.

ROSEOLA was sometimes employed by the older writers, though in a very loose sense, to signify scarlet-fever, measles, and one or two other exanthems that were often confounded: but as it is now no longer used for these it may stand well enough as a name for the present species, which Fuller has described as a flushing all over the body

GEN. II. SPEC. Exanthesis roseola. Rose-rash.

like fine crimson, which is void of danger, and "rather a ludicrous spectacle than an ill symptom."*

As a symptom this rash is frequently met with in various maladies. Thus in the dentition of infancy it appears on the cheeks; in the inoculated cow-pox, around the vesicle; in dyspepsy, and various fevers, in different parts of the body, constituting varieties, several of which by Dr. Willan are named, according to the disease they accompany, Roseola infantilis, R. variolosa, R. vaccina, and R. miliaris: but which, as mere symptoms of other disorders, are to be sought for in the diseases of which they occasionally form a part.

As a symptom occurs in various other affections.

Idiopathic sometimes. Occasional causes.

In the spring and autumn it often appears to be idiopathic especially in irritable constitutions. The occasional causes are fatigue, sudden alternations of heat and cold, or the drinking of very cold water after violent exercise. Dr. Willan mentions one instance of its occurring after sleeping in a damp bed. It has sometimes been mistaken for an eruption of the measles, and still oftener for that of a mild rosalia or scarlet-fever, of which last error the same author gives an example in a child that was extensively affected with it, about Midsummer, for several years in succession, and whose attendant physician informed the parents that the scarlet-fever had recurred in their child, seven times; and hence one reason why the same name was formerly applied to all these.

Description.

The attack is sometimes preceded during the heat of summer, by a slight febrile indisposition. It appears first on the face and neck, and, in the course of a day or two, is distributed over the rest of the body. The eruption spreads in small patches of various figures, but usually larger than those of measles, often as large as a shilling, at first of a brightish red, but soon settling into the deeper hue of the damask rose. It sometimes assumes an annular form, and appears over the body in rose-coloured rings with central areas or umbos of the usual colour of the skin: the rings being at first small, but gradually dilating to the diameter of half an inch.

* Exanthematologia, p. 128.—Bateman's Synops. 95.

This rash is troublesome, but of little importance otherwise. In the medical treatment of it the state of the stomach and bowels should be particularly inquired into, and, for the most part, will be found to require correction. Acidulated drinks, with occasional and gentle laxatives, generally remove the disease, unless it be connected with any constitutional or visceral affection, when it sometimes proves very obstinate, and can only be cured by curing the primary malady.

GEN. II. SPEC. Exanthesis roseola. Rose-rash. Medical treatment.

GENUS III.

EXORMIA.

Papulous Skin.

SMALL ACUMINATED ELEVATIONS OF THE CUTICLE; NOT CONTAINING A FLUID, NOR TENDING TO SUPPURATION; COMMONLY TERMINATING IN SCURF.

Gen. III. Synonyms.

For the acuminated elevation of the cuticle, which the Latins call papula, the Greeks had two synonymous terms ecthyma (ἔκθυμα) and exormia (ἐξόρμια). The first was used most frequently in this sense; but as this has by some unaccountable means been employed very generally to import a very different eruption, a crop of large pustulous, rather than of small solid pimples, forming a species of ECPYESIS, or the sixth genus of the present order, I have chosen the second term for the present purpose.

Ula in papula and other terms whence derived.

The common terminating diminutive *(ula* or *illa)* is probably derived from the Greek ὕλη (ulè or ilè,) "materia", "materies"—*of the matter, make, or nature of;* thus "papula or papilla", of the matter or nature of pappus; "lupula", of the matter or nature of the lupus; "pustula", of the matter or nature of pus; and so of many others.

Papula and pustula of different authors.

Papula and pustula, which by Sauvages are degraded into mere symptoms of diseases, and not allowed to constitute diseases of themselves, are raised to the rank of genera by Celsus, Linnéus, and Sagar, and, under a plural form (papulæ and pustulæ), to that of orders by Willan. In the present system exormia and ecphlysis, intended to supply their place, are employed as generic terms, and run parallel with those papulæ and pustulæ of Willan, which are not essentially connected with internal disease; and are only made use of instead of papula and pustula, first as being more immediately Greek, and next,

In what sense applied to the present and ensuing ge-

Gen. III. Exormia. Papulous skin.

in order to prevent confusion from the variety of senses assigned to the latter terms by different writers. Exormia and ecphlysis, therefore, as distinct genera under the present arrangement, import eruptions of pimples and pustules in their simplest state, affecting the cuticle, or at the utmost the superficial integument alone, and consequently without fever, or other internal complaint as a necessary or essential symptom; although some part or other of the system may occasionally catenate or sympathize with the efflorescence. It is difficult, indeed, to draw a line of separation, and perhaps impossible to draw it exactly, between efflorescences strictly cutaneous and strictly constitutional, from the numerous examples we meet with of the one description combining with or passing into the other. But a like difficulty belongs to every other branch of physiology in the widest sense of the term, as well as to nosology; and all we can do in any division of the science, is to lay down the boundary with as much nicety and caution as possible, and to correct it, as corrections may afterwards be called for.

nera in the arrangement of this work.

The species which belong to this genus, or which, in other words, are characterised by a papulous skin not necessarily connected with an internal affection, are the following:

1. EXORMIA STROPHULUS. GUM-RASH.
2. ——— LICHEN. LICHENOUS RASH.
3. ——— PRURIGO. PRURIGINOUS RASH.
4. ——— MILIUM. MILLET-RASH.

SPECIES I.

EXORMIA STROPHULUS.

Gum-Rash.

ERUPTION OF RED PIMPLES IN EARLY INFANCY, CHIEFLY ABOUT THE FACE, NECK, AND ARMS, SURROUNDED BY A REDDISH HALO; OR INTERRUPTED BY IRREGULAR PLOTS OF CUTANEOUS BLUSH.

GEN. III. SPEC. I. Red-gum was formerly called Red-gown.

Dr. WILLAN has observed, that the colloquial name of Red-gum, applied to the common form of this disease, is a corruption of Red-gown, under which the disease was known in former times, and by which it still continues to be called in various districts; as though supposed, from its variegated plots of red upon a pale ground to resemble a piece of red printed linen. In effect it is written Red-gown in most of the old dictionaries: in Littleton's as late as 1684, and I believe to the present day. The varieties in Willan are the following, whose descriptions are large and somewhat loose. We may extract from them, however, the subjoined distinctions of character:

α Intertinctus. Red-gum.	Pimples bright red; distinct; intermixed with stigmata, and red patches; sometimes spreading over the body.
β Albidus. White-gum.	Pimples minute, hard, whitish; surrounded by a reddish halo.
γ Confertus. Tooth-rash.	Pimples red, of different sizes, crowding or in clusters; the larger surrounded by a red halo; occasionally succeeded by a red crop.
δ Volaticus. Wild-fire-rash.	Pimples deep-red, in circular patches, or clusters; clusters sometimes solitary on each arm or cheek; more generally flying from part to part.

ε Candidus. Pallid gum-rash. Pimples large, glabrous, shining; of a lighter hue than the skin: without halo or blush.

GEN. III. SPEC. I. Exormia Strophulus. Gum-rash.

Generally speaking, none of these varieties are of serious importance; and all of them being consistent with a healthy state of all the functions of the body, they require but little attention from medical practitioners. Several of them are occasionally connected with acidity or some other morbid symptom of the stomach and bowels, and, hence, particular attention should be paid to the primæ viæ. The system, also, suffers generally, in many cases, if the efflorescence be suddenly driven inwards by exposure to currents of cold air or by the use of cold-bathing. Both these, therefore, should be avoided while the efflorescence continues; and if such an accident should occur, the infant should be immediately plunged into a warm bath, which commonly succeeds in reproducing the eruption, when the constitutional illness ceases*. In every variety, indeed, the nurse should be directed to keep the child's skin clean, and to promote an equable perspiration by daily ablutions with tepid water, which are useful in most cutaneous disorders; and will be found in other respects of material importance to the health of children.

General remarks in respect of cause; and medical treatment.

In the tooth-rash, strophulus *confertus*, there is no difficulty in tracing the ordinary cause. Yet this, also, has often been ascribed to a state of indigestion or some feverish complaint in the mother or nurse. "I have, however," says Dr. Willan, "frequently seen the eruption where no such cause for it was evident. It may with more propriety be ranked among the numerous symptoms of irritation arising from the inflamed and painful state of the gums in dentition, since it always occurs during that process, and disappears soon after the first teeth have cut through the gums." It may, however, like the red-gum, s. *intertinctus*, be occasionally connected with a weak and irritable state of the bowels: though the tender and delicate state of the skin, and the strong determination of blood

Particular remarks on E. strophulus confertus or tooth-rash.

* Bronset, sur l'Education des Enfans, p. 187.

GEN. III. SPEC. I. Exornia Strophulus. Gum-rash.

to the surface, which evidently takes place in early infancy, and is the common proximate cause of the red-gum, is probably the common remote cause of the tooth-rash.

The tooth-rash is the severest form in which strophulus shows itself. Instead of being confined to the face and breast, it oftentimes spreads widely over the body, though it appears chiefly, in a diffused state, on the fore-arm. Dr. Willan notices a very obstinate and painful modification of this disorder which sometimes takes place on the lower extremities. "The papulæ spread from the calves of the legs to the thighs, nates, loins, and round the body, as high as the navel; being very numerous and close together, they produce a continuous redness over all the parts above-mentioned. The cuticle presently becomes shrivelled, cracks in various places, and finally separates from the skin in large pieces." It has some resemblance to the intertrigo, which however may be distinguished by having an uniform red, shining surface without palulæ, and being limited to the nates and thighs.

Particular remarks on E. strophulus volaticus or wild-fire rash.

In like manner, those children are most liable to the strophulus *volaticus* or wild-fire rash, who have a fair and irritable skin, though this also occasionally catenates with a morbid state of the stomach and bowels. It appears sometimes as early as between the third and sixth month, but more frequently later.

Erythema volaticum. Æstus volaticus.

This last is the erythema volaticum of Sauvages, the æstus volaticus of many earlier writers: whence the French name of feu volage. All these terms have, however, been often used in a very indefinite sense, and hence, also applied to one or two species of porrigo, and especially porrigo *crustacea* or crusta lactea*. And hence, Dr. Armstrong has described this last disease as a strophulus or tooth-rash †.

Particular remarks on E. strophulus albidus and candidus.

The strophulus *albidus*, and strophulus *candidus*, are the two slightest varieties of this species of indisposition. The first is chiefly limited to the face, neck, and breast,

* Astruc, De Morb. Infant. p. 44.

† On the Diseases of Children, p. 34.

and often continues in the form of numerous, hard, whitish specks for a long time, which on the removal of their tops do not discharge any fluid, though it is probable they were originally formed by a deposition of fluid, which afterwards concreted under the cuticle. The pimples in the scrophulus candidus are larger and diffused over a wider space; often distributed over the loins, shoulders and upper part of the arms; though it is rarely that they descend lower. Several of the varieties occasionally co-exist and run into each other particularly the first two *.

GEN. III. SPEC. I. Exormia Strophulus. Gum-rash.

SPECIES II.

EXORMIA LICHEN.

Lichenous Rash.

ERUPTION DIFFUSE; PIMPLES RED; TROUBLESOME SENSE OF TINGLING OR PRICKING.

LICHEN (λειχήν-ος) is a term common to the Greek phytologists as well as the Greek pathologists. By the former it is applied to that extensive genus of the algæ, or rather to many of its species, which still retains the name of lichen in the Linnéan system: and it is conjectured by Pliny that the physicians applied the same name to the species of disease before us from the resemblance it produces on the surface of the body to many of the spotty and minutely tubercular lichens, which are found wild upon stones, walls, and the bark of trees or shrubs. Gorræus, however, gives two other origins of the term; one, of which he does not approve, from the eruption being supposed to be cured by its being licked with the human tongue; and the other, to which he inclines, from its creeping in a lambent or tongue-like form, over different parts of the body. The

GEN. III. SPEC. II. Origin of the technical term.

* Underwood, on the Diseases of Children, Vol. I. passim.

GEN. III. SPEC. II. Exormia lichen. Lichenous rash. How far related to the preceding species.

derivation in both these cases being λείχω "lambo", "lingo".

It is a far more troublesome rash than the preceding; from the severest modifications of which, however, it chiefly differs by the intolerable tingling or pricking which accompanies, and peculiarly characterises it. The following are its chief varieties:

α Simplex. Simple Lichen.	General irritation; sometimes a few febrile symptoms at the commencement; tingling aggravated during the night; pimples scattered over the body; which fade and desquammate in about a week.
β Pilaris. Hair-Lichen.	Pimples limited to the roots of the hair; desquammate after ten days; often alternating with complaints of the head or stomach.
γ Circumscriptus. Clustering Lichen.	Pimples in clusters or patches of irregular forms, appearing in succession over the trunk and limbs; sometimes coalescing; and occasionally reviving in successive crops, and persevering for six or eight weeks.
δ Lividus. Livid Lichen.	Pimples dark-red or livid; chiefly scattered over the extremities; desquammation at uncertain periods, succeeded by fresh crops, often persevering for several months.
ε Tropicus. Summer-rash. Prickly-heat.	Pimples bright-red, size of a small pin's head; heat, itching, and needle-like pricking; sometimes suddenly disappearing, and producing sickness or other internal affection; relieved by the return of a fresh crop.

ζ Furfus. Wild Lichen.	Pimples in clusters or patches, surrounded by a red halo; the cuticle growing gradually harsh, thickened, and chappy: often preceded by general irritation.	Gen. III. Spec. II. Exormia lichen. Lichenous rash.
η Urticosus. Nettle-Lichen.	Pimples very minute, slightly elevated, reddish: intolerably itching, especially at night; irregularly subsiding, and reappearing; chiefly spotting the limbs; occasionally spreading over the body with gnat-bite-shaped wheals: from the violence of the irritation, at times accompanied with vesicles or blisters, and succeeded by an extensive exfoliation of the cuticle.	

General remarks.

Under this species, as under the last, we may observe that all the varieties are in their purest state simple affections of the skin, though occasionally, probably from peculiarity of habit, or some accidental disorder of the digestive function, connected with the state of the constitution or of the stomach or bowels. Dr. Willan, indeed, makes it a part of his specific character, that lichen is "connected with internal disorder": but his description is at variance with his definition; for with respect to the first variety, or simple lichen, he expressly asserts* that it "sometimes appears suddenly without any manifest disorder of the constitution". While in regard to the tropical lichen or prickly heat, one of the severest modifications under which the disease appears, he states, and with apparent approbation, from Winterbottom, Hillary, Clark, and Cleghorn, that it is considered as salutary; that even, "a vivid eruption of the prickly heat is a proof that the person affected with it is in a good state of

Not necessarily connected with internal disorder; though the contrary asserted by Willan, whose opinion is disproved by his own quotations.

* Willan, p. 39.

GEN. III. SPEC. II. Exormia lichen. Lichenous rash.

health";—that "its appearance on the skin of persons in a state of convalescence from fevers, &c. is always a favourable sign, indicating the return of health and vigour"*; that "it seldom causes any sickness or disorder except the troublesome itching and pricking"†; that "it is not attended with any febrile commotion whilst it continues out"‡; and that "it is looked upon as a sign of health, and, indeed, while it continues fresh on the skin, no inconvenience arises from it except a frequent itching."§ And, in like manner, Dr. Heberden observes that some patients have found themselves well on the appearance of the eruption, but troubled with pains of the head and stomach during the time of its spread; but by far the greater number experience no other evil from it besides the intolerable anguish produced by the itching, which sometimes makes them fall away by breaking their rest, and is often so tormenting as to make them almost weary of their lives. Most of these remarks apply equally to the urticose variety, one of its severest forms, as I shall have occasion to observe presently.

α E. lichen simplex. Simple lichen. Description and progress.

The SIMPLE LICHEN shows itself first of all by an appearance of distinct red papulæ about the cheeks and chin or on the arms, with but little inflammation round their base: in the course of three or four days the eruption spreads diffusely over the neck, body, and lower extremities, attended with an unpleasant sensation of tingling which is sometimes aggravated during the night. In about a week the colour of the eruption fades, and the cuticle separates in scurf. All the surface of the body, indeed, remains scurfy for a long time, but particularly the flexures of the joints. The duration of the complaint varies; and hence, in different cases, a term of from fourteen to thirty days intervenes between the eruption and a renovation of the cuticle. "The eruption sometimes appears suddenly without any manifest disorder of the constitution"‖; and sometimes there is a febrile state or rather a state of irritation at the beginning of the disorder though

* Willan, p. 35, from Winterbottom. † Id. p. 59, from Hillary.
‡ Id. p. 61, from Clark. § Id. p. 63, from Cleghorn. ‖ Id. ut suprà, p. 39

"seldom considerable enough to confine the patient to the house" *—and which is relieved by the appearance of the eruption. It has occasionally been mistaken for measles or scarlatina: but its progress, and, indeed, the general nature of its symptoms from the first are sufficiently marked to distinguish it from either of these.

GEN. III. SPEC. II. a E. lichen simplex. Simple lichen.

The causes are not distinctly pointed out by any of the writers, and it is singular that they should have been passed by both by Willan and Bateman. So far as I have seen, this and all the varieties depend upon a peculiar irritability of the skin as its remote cause, and some accidental stimulus as its exciting cause. The irritability of the skin is sometimes constitutional, in which case the patient is subject to frequent returns of the complaint; but it has occasionally been induced by various internal and external sources of irritation: as a diet too luxurious or too meagre; the debility occasioned by a protracted chronic disease, or an exacerbated state of the mind; an improper use of mercury, or of other preparations that have disagreed either with the stomach, or the chylifacient viscera. Under any of which circumstances, a slight occasional cause is sufficient for the purpose, as exposure to the burning rays of a summer sun, a sudden chill on the surface, cold water drunk during great heat or perspiration; a dose of opium or any other narcotic, or substance that disagrees with the stomach or the idiosyncrasy. Dr. Heberden has suggested another cause, as perhaps operating in various cases, and inquires whether it may not be produced by some irritant floating in the atmosphere of so fine a structure as to be invisible to the naked eye, as the down of various plants or insects; and he particularly alludes to the delicate hairs of the dolichos *pruriens* or cowhage as occasioning the disease in the West Indies, from their attacking the skin in this manner imperceptibly. But since general ablutions afford little or no relief, and all medicated lotions are even more ineffectual; and as we can often trace it to other causes in our own

Causes.

Whether produced at any time by some irritant floating in the air.

* Willan, p. 87.

GEN. III. SPEC. II. α E. lichen simplex. Simple lichen.

country, and are at no less for a different cause in the West Indies, the present can hardly be allowed to be the ordinary cause, though it may become an occasional excitement.

Mode of treatment.

The remedial process should consist in keeping the bowels cool and free by neutral salts; a mixed diet of vegetables, ripe fruits, especially of the acescent kind, as oranges and lemons, and fresh animal food; with an abstinence from fermented liquors, a light and cool dress, an open exposure to pure air, and an occasional use of the tepid-bath. The mineral acids have sometimes proved serviceable, but not always; and the red or black hydrargyri sulphuretum has been thought useful by many: but the plan proposed by Mr. Wilkinson for the severer kinds of the disease, will here also be often found well worthy of trial; which consists in a calomel purge twice a week, and the internal use of the subcarbonate of ammonia in a dose of five or six grains, four or five times a-day *.

Where the system is evidently in an impoverished state from previous sickness, innutritive food, or any mesenteric affection, bark, the mineral acids, or the metallic tonics afford a reasonable hope of relief, and especially such preparations of iron as may sit easy on the stomach.

β E. lichen pilaris. Hair-lichen. γ E. lichen circumscriptus. Clustering lichen.

The HAIR-LICHEN, and CLUSTERING LICHEN differ from the preceding in little more than a difference of station or of form. Their causes or mode of treatment run parallel, and it is not needful to enlarge on them farther.

δ E. lichen lividus. Livid lichen.

The LIVID LICHEN is evidently connected with a weak and debilitated habit. Its papulæ are often interspersed with petechiæ, sometimes, indeed, with purple patches or vibices, and manifest a state of constitution bordering on that of scurvy or porphyra. Here the diet, regimen and medical treatment should be altogether tonic and cordial, and may be taken from the plan already proposed for this last malady †.

* Remarks on Cutaneous Diseases. 1822.

† Vol. III. Class III. Ord. IV. Spec. X.

Gen. III. Spec. II. E. lichen tropicus. Prickly heat. Tropical lichen. Eshera or Essera.

The TROPICAL LICHEN, or PRICKLY HEAT, is a disease of high antiquity and is equally described by the Greek and Arabian writers. The latter denominate it ESHERA (اشرا), which is the plural of sheri (شري), literally *papulæ*, and hence THE PAPULÆ, or PAPULOUS DISORDER, by way of emphasis. And this term, softened or corrupted into essera, has been adopted and employed as the name of the disease by many European writers of great reputation, as Bartholin, Hillary, and Ploucquet. The term, however, has sometimes been used both in the East and among Europeans in a looser sense, so as occasionally, but most improperly, to embrace urticaria, and some other febrile rashes as well.

The symptoms of the disease I shall give in the words of my valued friend Dr. James Johnson, who delineates the disease as he has felt it, and as, in recollection, he seems almost to feel it still, and hence his description flows

Warm from the heart and faithful to its fires.

"From mosquittoes", says he, "cock-roaches, ants, and the numerous other tribes of depredators on our personal property, we have some defence by night, and, in general, a respite by day; but this unwelcome guest assails us at all, and particularly the most unseasonable hours. Many a time have I been forced to spring from table and abandon the repast, which I had scarcely touched, to writhe about in the open air, for a quarter of an hour: and often have I returned to the charge, with no better success, against my ignoble opponent! The night affords no asylum. For some weeks after arriving in India, I seldom could obtain more than an hour's sleep at one time, before I was compelled to quit my couch, with no small precipitation, and if there were any water at hand, to sluice it over me, for the purpose of allaying the inexpressible irritation! But this was productive of temporary relief only; and, what was worse, a more violent paroxysm frequently succeeded.

"The sensations arising from prickly heat are perfectly

GEN. III. SPEC. II. a E. lichen tropicus. Prickly heat. Tropical lichen.

indescribable; being compounded of pricking, itching, tingling, and many other feelings, for which I have no appropriate appellation.

"It is usually, but not invariably accompanied by an eruption of vivid red pimples, not larger in general, than a pin's head, which spread over the breast, arms, thighs, neck, and occasionally along the forehead, close to the hair. This eruption often disappears, in a great measure, when we are sitting quiet, and the skin is cool; but no sooner do we use any exercise that brings out a perspiration, or swallow any warm, or stimulating fluid, such as tea, soup, or wine, than the pimples become elevated, so as to be distinctly seen, and but too sensibly felt!

"Prickly heat, being merely a symptom, not a cause of good health, its disappearance has been erroneously accused of producing much mischief; hence the early writers on tropical diseases, harping on the old string of 'humoral pathology', speak very seriously of the danger of *repelling*, and the advantage of 'encouraging the eruption, by taking small warm liquors, as tea, coffees, wine-whey, broth, and nourishing meats.'

"Indeed, I never saw it even repelled by the cold bath; and in my own case, as well as in many others, it rather seemed to aggravate the eruption and disagreeable sensations, especially during the glow which succeeded the immersion. It certainly disappears suddenly sometimes on the *accession* of other diseases, but I never had reason to suppose that its disappearance *occasioned* them. I have tried lime-juice, hair-powder, and a variety of external applications, with little or no benefit. In short, the only means which I ever saw productive of any good effect in mitigating its violence, till the constitution got assimilated to the climate, were—light clothing—temperance in eating and drinking—avoiding all exercise in the heat of the day—open bowels—and last, not least, a determined resolution to resist with stoical apathy its first attacks."

In this species, as also in the next, it is obvious that the extremities of the nerves which accompany the cuta-

neous papillæ, are in a peculiar state of irritation. And when we reflect that the organ of the skin possesses the most acute sensibility of any of the structures of the body, and suffers more pain than any other part under amputation; and when to this we add that the nerves are uniformly most sensible at their extremities, we can be at no loss to account for the maddening distress which is hereby produced *.

GEN. III. SPEC. II. ε E. lichen tropicus. Prickly heat. Tropical lichen. Agony of the smarting explained.

The wild lichen, or LICHEN FERUS, is particularly noticed by Celsus under the name of AGRIA, as applied to it by the Greeks from the violence with which it rages. It occurs in him after a brief description of a variety of papula of a milder kind, which Willan supposes, and with some reason, to be the clustering. "Altera autem est, quam Ἀγρίαν Græci appellant: in qua similiter quidem, sed magis cutis exasperatur, exulceraturque, ac vehementius et roditur, et rubet, et interdum inter pilos remittit. Quæ minus rotunda est, difficilius sanescit: nisi sublata est, in impetiginem vertitur."† This variety, however, in its general range, its vehemence, and protracted duration, approaches nearer to the nettle-lichen than to any other: yet the pimples are larger, more clustered, and more apt to run into a pustular inflammation, so as often to produce cutaneous exulcerations and black scabs; and hence the remark of Celsus that it is disposed to terminate in an impetigo, or, as others have it, in psora or lepra.

ζ E. lichen ferus. Wild lichen. Agria of Celsus.

The URTICOSE or NETTLE-LICHEN is, perhaps, the most distressing form of all the varieties, if we except the tropical: and like the tropical, notwithstanding its violence, it is often totally independent of any constitutional affection. I can distinctly say from various cases that have occurred to me, that even where the patient has been worked up to such a degree of madness as to force him against his own will into a perpetual scratching, which greatly exasperates it, still the constitution has remained unaffected, the pulse regular, the appetite good, and the

η E. lichen urticosus. Nettle lichen. The most troublesome of all the species, but not necessarily connected with the constitution.

* Bostock, Elementary System of Physiology, p. 85. 8vo. 1824.

† De Medicina, Lib. v. Cap. XXVIII.

GEN. III. SPEC. II. β E. lichen urticosus. Nettle lichen.

head clear. In most of the cases, the author alludes to, however, there was an established or idiopathic irritability of the system, and especially of the skin; and in one or two of them it was unfortunate that opium, under every form and in every quantity, always increased the irritability; while no other narcotic was of any avail. I freely confess that I have been more perplexed with this obstinate and intractable variety, which has, in some cases, irregularly subsided for a few days or weeks, and then reappeared with more violence than ever, than I have been with almost any other complaint that has ever occurred to me. The subcarbonate of ammonia, as just referred to, has sometimes been serviceable, but by no means always. A tepid bath and especially of sea-water has sometimes also been useful, but I have often found even this fail; and have uniformly observed the bath mischievous when made hot; for the skin will not bear stimulation. The hydrocyanic or prussic acid in doses of four minims, two or three times a day, has occasionally also subdued the irritability, though in a few instances it has produced more mischief than it has removed.

Most intractable in medical treatment.

Prussic acid.

From the alterant apozems of sarsaparilla, elm-bark, juniper-tops, and snake-root, no benefit has accrued; and as little from sulphur, sulphurated quick-silver, nitre, the mineral acids, and the mineral oxydes and salts. I once tried the arsenic solution, but the stomach would not bear it. Sea-bathing, however, in connexion with sea-air, has rarely failed; and I am hence in the habit of prescribing it to a delicate young lady who has been several times most grievously afflicted with this distressing malady, as soon as it re-appears; as well from the known inefficacy of every other remedy, a long list of which she has tried with great resolution, as from the benefit which this has almost uniformly produced.

Mr. Wilkinson recommends that the itching parts be frequently moistened with a lotion consisting of a scruple of subcarbonate of ammonia, and acetate of lead dissolved in four ounces of rose water and be slightly touched

every day, or every other day with aromatic vinegar diluted with one third part of water *.

Gen. III. Spec. II. Exormia lichen. Lichenous rash. Treatment. How far related to the wild lichen.

I have said that the wild lichen in its severity and duration offers a near resemblance to this. The former, however, is more apt to run into a pustular inflammation, though in the nettle-lichen we sometimes find a few of the vesicles filled with a straw-coloured fluid, but which are not permanent. There is also a greater tendency to some constitutional affection in the wild than in the nettle modification, and particularly to a sickness or some other disorder of the stomach upon repulsion by cold. Under the nettle-lichen the patient seldom finds the stomach or any other organ give way, and will endure exposure to a sharp current of air with a full feeling of refreshment, without any danger of subsequent mischief.

Singular modification described by Monsey.

There is a singular modification of this disease described in a letter from Dr. Monsey, of Chelsea College, to Dr. Heberden, in which the cause was exposure of the skin to a bright sun in the open air. The patient was a man thirty years of age, of a thin, spare, habit: and his skin, as soon as the solar rays fell upon it, became instantly almost as thick as leather, and as red as vermilion, with an intolerable itching: the whole of which abated about a quarter of an hour after he went into the shade. Dr. Monsey adds that this was not owing to the heat of the sun, for the sun in winter affected him full as much, if not more, and the heat of the fire had not such an effect. He was, in consequence, thrown into a state of "confinement for near ten years. It may not be amiss," continues Dr. Monsey, "to mention one particular, which is, that one hot day having a mind to try if he were at all benefited by his immersions" (he seems to have used a salt-bath under cover for many weeks) "he undressed himself and went into the sea in the middle of the day: but he paid very dearly for the experiment, the heat diffusing itself so violently over his whole body by the time he had put on his clothes, that his eye-sight began to fail, and he was

* Remarks on Cutaneous Diseases, p. 25. 1822.

GEN. III. SPEC. II. Exormia lichen. Lichenous rash. Treatment.

compelled to lie down upon the ground to save himself from falling. The moment he lay down the faintness went off; upon this he got up, but instantly found himself in the former condition: he, therefore, lay down, and immediately recovered. He continued alternately getting up and lying down till the disorder began to be exhausted, which was in about half an hour, and so gradually went off. He had frequently been obliged to use the same practice at other times, when he was attacked with this disorder."

Singularities of the case explained.

That this case is to be regarded as a peculiar form of the present species, the extraordinary irritation and intolerable itching of the skin seem to vouch for sufficiently. It discovers, however, a cutaneous excitement of an idiopathic and most singular kind: and, keeping this idea in mind, it is not difficult to account for the tendency to deliquium related in the latter part of the account. The patient, it seems, could endure cold bathing under cover or in the shade, and was not rendered faint by the re-active glow that ensued upon his quitting the water; but when to this re-active glow was united, in consequence of his bathing in the open air and in the middle of the day, the pungent heat of the sun, he was incapable of enduring both, till, by a certain length of exposure to this conjoint stimulus, the cutaneous nerves became torpid, which it seems they did in about half an hour; when the affection we are told "gradually went off".

A daily exposure to the same exhausting power would, in all probability, soon have rendered the torpitude habitual, or at least have reduced the cutaneous sensibility to its proper balance, which, after all, forms the real cure in the West Indies, and in most of the chronic cases of our own country. This, however, does not seem to have been thought of: but, after having tried a long list of different series of medicines in hospital and in private practice to no purpose, the patient was at length fortunate enough, when under the care of Dr. Monsey, to be put, as a forlorn hope, upon a brisk course of calomel, of which he took five grains every night with a purge of rhubarb or cathartic extract the ensuing morning for nearly a

Beneficial effects of calomel.

fortnight in succession; and having thus transferred the morbid irritability of the skin to the intestinal canal, the disease left him.

Gen. III. Spec. II. Exormia lichen. Lichenous rash. Treatment.

SPECIES III.

EXORMIA PRURIGO.

Pruriginous Rash.

ERUPTION DIFFUSE: PIMPLES NEARLY OF THE COLOUR OF THE CUTICLE; WHEN ABRADED BY SCRATCHING OOZING A FLUID THAT CONCRETES INTO MINUTE BLACK SCABS; INTOLERABLE ITCHING, INCREASED BY SUDDEN EXPOSURE TO HEAT.

Gen. III. Spec. III. How far related to lichen.

In the symptoms of a papular eruption, and an intolerable itching, this species bears an approach towards the preceding; but it differs from it essentially in the colour of the papulæ, and in the nature of the itching, which is often far more simple; and, when combined with a sense of stinging, gives a feeling peculiar to itself, like that of a nest of ants creeping over the body and stinging at the same time.

It offers the three following varieties, the last of which chiefly differs from the second in being more inveterate:—

α Mitis. Mild Prurigo.	Pimples soft and smoooth: itching at times subsiding; chiefly common to the young and in spring time.
β Formicans. Emmet-prurigo.	Pimples varying from larger to more obscure than in the last; itching incessant, and accompanied with a sense of pricking or stinging, or of the creeping of ants over the body; dura-

Gen. III. Spec. III. Exormia prurigo. Pruriginous rash.

tion from two months to two or three years, with occasional but short intermissions: chiefly common to adults.

γ Senilis. Inveterate prurigo. Pimples mostly larger than in either of the above, sometimes indistinct, giving the surface a shining and granulated appearance; itching incessant: common to advanced years, and nearly inveterate.

General remarks.

In all the varieties the itching differs in its extent; being sometimes limited to a part only of the body, and sometimes spreading over the entire frame *. Courmette relates a case in which it alternated from side to side †: and in many instances it appears periodically. Hence, in Willan we have not only an account of the three preceding varieties, but of several others, which chiefly, if not entirely, differ from them in being limited to particular parts; as prurigo podicis, p. præputii, p. urethralis, p. pubis, p. pudendi muliebris.

General causes and ordinary abode.

A common cause of this species in all its varieties, though by no means the only cause, is want of proper cleanliness of the skin and of apparel; and hence it is found most frequently in the hovels of the poor, the squalid, and the miserable. Yet as it is not always found under these circumstances even where there is the grossest uncleanliness, some other cause jointly operating in such situations, some idiopathic condition of the skin, by which the sordes thus collected and obstructing the mouths of the cutaneous exhalants becomes an active irritant, must be admitted. One of these conditions appears to be a skin peculiarly delicate and sensible, which is mostly to be found in early life; and another, a skin peculiarly dry and scurfy, which is a common condition of old age; on

Particular causes.

* Sitonus, Tr. 34, Loescher. † Journ. Med. Tom. LXXXV.

Gen. III. Spec. III. Exormia prurigo. Pruriginous rash.

which account repelled perspiration is correctly set down as a cause by Riedlin. Even in the cleanliest habits, these peculiarities of the skin often become causes of themselves, and of a more intractable kind than mere sordes, as they are far more difficult of removal. A diet of fish alone has sometimes excited such a habit: and an habitual addiction to spirituous drinks, whether wine, ale, or alcohol, produces also, in many persons, a like sensibility of the surface, and lays a foundation for the disease in its most obstinate form.

The papulæ when chronic form exulcerations. Which sometimes become nests for parasitic insects as the acarus and pediculus. Often altered in their form from the luxuriance of their repast. Illustration.

Where the rash continues long and becomes pertinacious, the papulæ form minute exulcerations, degenerating, in the first variety, into a species of contagious itch, and in the second, into a running scall; which last, in the third or inveterate variety, sometimes forms nests for various parasitic insects *, and especially for several species of the acarus and pediculus, to which Dr. Willan adds the pulex. In treating of intestinal animalcules, we had occasion to observe that "they appear, from the luxuriance of their haunts and repasts, to be, in various instances, peculiarly enlarged and altered from the structure they exhibit out of the body; whence a difficulty in determining, in many cases, the exact external species to which a larve, worm, or animalcule found within the body may belong." † This remark applies with peculiar force to the parasites detected in the diseases before us, some of which grow to such an enormous size, and with such altered characters from rioting on so plentiful a supply of juices, that it is by no means easy to recognize them. Dr. Willan describes an insect of this kind found in great abundance on the body of a patient suffering under the inveterate prurigo, which he at first took for a pediculus, though from the nimbleness of its motions, as well as from other characters, he at length ascertained it to be a pulex, not described by Linnæus: more probably, from the causes just stated, so altered in its form, as not to be easily referred to the species to which it really belongs.

* Sommer, Diss. de affectibus pruriginosis Senûm.—Loescher, Diss. de pruritu senili totius corporis. Witeb. 1728.

† Vol. i. Helminthia erratica, p. 306.

GEN. III. SPEC. III. Exormia prurigo. Pruriginous rash. Medical treatment.

Thorough and regular ablution and cleanliness are here, therefore, peculiarly necessary, and these will often succeed alone, especially in the first variety. If they should not, sulphur and the sulphureous waters, as that of Harrowgate, taken internally and applied to the skin itself, have sometimes been found serviceable. Fossile alkali combined with sulphur and taken internally with infusion of sassafras or juniper tops is peculiarly recommended by Dr. Willan. Small doses of the blue pill, as three or four grains every night, combined with a like proportion of the extract of colocynth is often found serviceable, and especially where the complaint is obstinate and has become chronic. Where it is of fresher origin washing the parts affected with a diluted solution of ammonia or potash, as for example, a drachm of sal volatile or hart's-horn, to an ounce of water; or half a drachm of the liquor potassæ to the same proportion of water. This will produce a new excitement or counter-stimulus; and the specific irritation will be generally lost in the common, which we may rest from as soon as necessary: a remark which it may be advantageous to bear in mind through most of the cutaneous affections before us, as in numerous instances they will yield, if early attended to, under a like treatment, and it is for the same reason that they have often given way to an occasional use of aromatic vinegar, or a diluted solution of nitrate of silver. In a very obstinate and chronic case, Mr. Wilkinson tells us that he derived very great benefit from a free use of an ointment consisting of equal parts of sulphur and tar united by means of lard, with two drachms of hydrosulphuret of ammonia, and four ounces of chalk to every pound and a half. This was liberally applied over the whole extent of the eruption every day, and washed off every other day. Plummer's pill and the arsenic solution, however, were employed internally in the mean-while; and the parts occasionally washed with undiluted aromatic vinegar, or else a solution of nitrate of silver, previous to the application of the ointment *. If the constitution have suffered from a

Blue pill with colocynth.

Dilute solution of ammonia for a lotion; or of potash.

Mode of action.

* Remarks on Cutaneous Diseases, p. 30. 1822.

meagre diet, or be otherwise exhausted, general tonics and a nutritive food must necessarily form a part of the plan.

Gen. III. Spec. III. Exormia prurigo.

In many cases, however, of the second variety, and in still more of the third, this pertinacious and distressing complaint bids defiance to all the forms of medicine, or the ingenuity of man: and I cannot adduce a stronger illustration of this remark than by referring to an attack which it lately made on one of the brightest ornaments of medical science in our own day, whose friendship allows me to give the present reference to himself. It is now something more than four years since he was first visited with this formicative but colourless rash which affected the entire surface, but chiefly the legs: and he has since tried every mean that the resources of his own mind or the skill of his medical friends could suggest, yet for the most part without any thing beyond a palliative or temporary relief. The tepid bath produced more harm than good, though several times repeated: Harrowgate water internally and externally had recourse to was of as little avail: acids and alkalies, separate or conjoined, in whatever way made use of, failed equally, nor did purgatives or diaphoretics or any of the alterative diet drinks, or the alterative metallic preparations answer better. The coldest spring water employed as a bath or lotion, and free doses of opium as a sedative, were the only medicines from which he at any time derived any decided relief, and these constantly afforded it for a short time. In the middle of the coldest nights of the preceding winter, and the still colder nights of the winter before, he was repeatedly obliged to rise and have recourse to sponging with cold water, often when on the point of freezing. The opium he took never effected real sleep, nor abated the complaint but generally threw him into a quiet kind of a revery which produced all the refreshment of sleep: and to obtain this happy aphelxia or abstraction of mind he was compelled to use the opium in large doses, often to an extent of ten grains every twenty-four hours, for weeks together, and rarely in less quantity than five or six grains a day and night for many months in succession. The

Prurginous rash. Sometimes peculiarly pertinacious. Striking illustration.

General course of medicines tried in vain.

Cold spring water as a lotion and free doses of opium serviceable.

GEN. III. SPEC. III. Exormia prurigo. Pruriginous rash.

change operated on the general habit by this peculiar sensibility of the skin was not a little singular; for first, in the midst of the distraction produced by so perpetual a harassment, and the necessary restlessness of nights, neither his animal spirits nor his appetite in any degree flagged, but, upon the whole, rather increased in energy, and his pulse held true to its proper standard. And next, though opium was wont to disagree with him in various ways antecedently, it proved a cordial to him through the whole of this tedious affection without a single unkindly concomitant, and never rendered his bowels constipated. From the long continued excess of action there was at length an evident deficiency in the restorative power of the skin: for two excoriations arising from the eruption, degenerated into sloughing ulcers. At the distance of about nineteen or twenty months from the first attack, he began to recover; the skin which had been so long in a state of excitement lost its morbid sensibility, and became torpid: he had rarely occasion to have recourse to cold ablutions, but dared not trust himself through the day without a dose of opium, as an exhilarant, though the quantity was considerably reduced. For many months also he took the bark and soda as a general tonic. Perhaps the most instructive part of this case is the great advantage and safety of the external application of cold water, as a refrigerant and tonic in cutaneous eruptions accompanied with intolerable heat and irritation. And it is possible that half the wells, which in times of superstition were dedicated to some favourite saint, and still retain his proper name, derive their virtue from this quality rather than from any chemical ingredient they contain, which has often as little to do with the cure as the special interposition of the preternatural patron.

Animal spirits not affected: nor appetite.

Prussic acid,

I do not know that the prussic acid has hitherto been introduced into practice in this kind of rash: but as I have reason to think it has occasionally proved successful in the wild lichen as well as in various other disorders of the skin, accompanied with severe irritation, it may be tried, with some hope, internally in doses of three or four minims

internally

two or three times a day; and, perhaps, not without a beneficial effect, in a dilute solution externally; for which, however, the laurel water itself may form a convenient substitute.

Gen. III. Spec. III. Exormia prurigo. Pruriginous rash. and externally, or laurel water.

SPECIES IV.

EXORMIA MILIUM.

Millet-Rash.

PIMPLES VERY MINUTE; TUBERCULAR; CONFINED TO THE FACE; DISTINCT; MILK-WHITE; HARD; GLABROUS; RESEMBLING MILLET-SEEDS.

Gen. III. Spec. IV. Grutum of Plenck,

This species is taken from Plenck who denominates it grutum sive milium. It is a very common form of simple pimple or exormia, and must have been seen repeatedly by every one, though, with the exception of Plenck, I do not know that it has hitherto been described by any nosologist. It has a near resemblance to the white-gum of children, as described by Dr. Underwood, the strophulus albidus of Willan, and the present system. But the pimples in the milium are totally unattended with any kind of inflammatory halo or surrounding redness: and are wholly insensible. They are sometimes solitary, but more frequently gregarious. It is a blemish of small importance and rarely requires medical interposition: but as it proceeds from a torpid state of the cutaneous excretories, or rather of their mouths or extremities which are balled up by hardened mucus, stimulant and tonic applications have often been found serviceable, as lotions of brandy, spirit of wine, or tincture of myrrh, or a solution of sulphate of zinc with a little brandy added to it.

resemblance to strophulus albidus: in what respect discrepant.

Medical treatment.

When this species becomes inflamed it lays a foundation for a varus or stone-pock, which we have already described under the order of INFLAMMATIONS in the third class of the present system *.

* Vol. II. p. 342.

GENUS IV.

LEPIDOSIS.

Scale-Skin.

EFFLORESCENCE OF SCALES OVER DIFFERENT PARTS OF THE BODY, OFTEN THICKENING INTO CRUSTS.

GEN. IV.

Origin of the generic term.

LEPIDOSIS is a derivative from λεπὶς, -δος, "squamma." The Greek is preferred to the Latin term, in concurrence with the general rule adopted in the present system in regard to the names of the classes, orders, and genera.

General character of the genus.

The genus includes those diseases which consist in an exfoliation of the cuticle in scales or crusts of different thickness, and with a more or less defined outline, in many cases owing to a morbid state or secretion of the rete mucosum or adipose layer of the part immediately beneath, which is sometimes too dry, or deficient in quantity; sometimes perhaps absent altogether; sometimes charged with a material that changes its natural colour; and sometimes loaded with an enormous abundance of a glutinous fluid, occasionally combined with calcareous earth. In the severer cases the true skin participates in the change.

Rete mucosum frequently affected.

Illustrated.

As this colorific substance, forming the intermediate of the three lamellæ that constitute the cutaneous integument, is only a little lighter in hue than the true skin among Europeans, it is not often that we have an opportunity in this part of the world of noticing the changes effected upon it by different diseases: but as among negroes it contains the black pigment by which they are distinguished, such changes are among them very obvious: for the individual is sometimes hereby, as we shall see presently, rendered pye-balled, or spotted black and white, and there are instances in which the whole of this substance, or rather of its colouring part, being carried off by a fever, a black man has suddenly been transformed into a white.

Gen. IV. Lepidosis. Scale-skin.

Changes of this kind often occur without any separation of the cuticle from the cutis, but if the fever be violent such separation takes place over the entire body, and the cuticle is thrown off in the shape of scurf, or scales, or a continuous sheath. And sometimes the desquammation from a hand has been so perfect that the sheath has formed an entire glove. The same effect has followed occasionally from other causes than fever, as on an improper use of arsenic* or other mineral poisons, on being bitten by a viper†, and sometimes on a severe fright‡. There are various instances in which the nails have been exfoliated with the cuticle §, and others in which the hair has followed the same course. Sometimes, indeed, a habit of recurrence has been established and the whole has been thrown off and renewed at regular periods ‖, in one instance once a month ¶.

Sometimes the cuticle hereby separated from the cutis.

Together with the nails and hair: separated periodically.

In the genus before us the exfoliations are of a more limited kind, and in some instances very minute and comparatively insignificant. In the severer forms, however, the true skin participates in the morbid action, and the result is far more troublesome.

Minute exfoliations in the present genus.

The species it presents to us are the following:

1.	LEPIDOSIS PITYRIASIS.	DANDRIFF.
2.	——— LEPRIASIS.	LEPROSY.
3.	——— PSORIASIS.	DRY SCALL. / SCALY TETTER.
4.	——— ICHTHYIASIS.	FISH-SKIN.

* De Haen, Rat. Med. Part x. Cap. ii.
† Eph. Nat. Cur. Dec. i. Ann. iv. v. Obs. 38.
‡ Act. Nat. Cur. Vol. vii. Obs. 43.
§ Eph. Nat. Cur. Dec. iii. Ann. ii. Obs. 124.
‖ Gooch, Phil. Trans. 1769.
¶ Eph. Nat. Cur. Dec. iii. Ann. i. Obs. 134.

SPECIES I.

LEPIDOSIS PITYRIASIS.

Dandriff.

PATCHES OF FINE BRANNY SCALES, EXFOLIATING WITHOUT CUTICULAR TENDERNESS.

GEN. IV. SPEC. I.

THIS species is the slightest of the whole: its varieties are as follow:

α Capitis. Dandriff of the head.	Scales minute and delicate: confined to the head; easily separable. Chiefly common to infancy and advanced years.
β Rubra. Red dandriff.	Scaliness common to the body generally; preceded by redness, roughness, and scurfiness of the surface.
γ Versicolor. Motley dandriff.	Scaliness in diffuse maps of irregular outline, and diverse colours, chiefly brown and yellow; for the most part confined to the trunk.

Import of the specific term used by Greek and Arabian writers.

Pityriasis is a term common to the Greek Physicians, who concur in describing it, to adopt the words of Paulus of Ægina, as "the separation of slight furfuraceous matters (πιτυρώδων σωμάτων), from the surface of the head, or other parts of the body, without ulceration." The same character is given by the Arabian writers, and especially by Avicenna and Ali Abbas. But several writers, both Greek and Arabian, who have thus described it generally, limit its extent to the head, which is the ordinary seat of the porrigo or scabby scall, characterized by ulceration, and a purulent discharge, covered by minute scabs; and hence in some writers pityriasis has been confounded with

porrigo; or, in other words, the dry and branny scale with the pustular scab; which, however, there is no difficulty in accounting for, since the first variety, whose seat is also in the head, has a tendency, if neglected, and the minute and scurfy scales grow thicker and broader, and crustaceous, to degenerate into porriginous pustules.

Gen. IV. Spec. I. Lepidosis pityriasis. Dandriff. How distinguished from porrigo.

The FIRST VARIETY, or DANDRIFF OF THE HEAD, when it attacks infants, exhibits minute scales, and when it appears in advanced age, scales of larger diameter. It shows itself at the upper edge of the forehead and temples as a slight whitish scurf, set in the form of a horse-shoe; on other parts of the head there are also cuticular exfoliations, somewhat larger, flat and semipellucid. Sometimes, however, they cover nearly the whole of the hairy scalp, imbricate in position, or with an overlap, as in tiling.

α L. Pityriasis capitis. Dandriff of the head.

Little attention is necessary to this complaint beyond that of cleanliness, and frequent ablution; where, however, the hairy scalp is attacked it is better to shave the head, when the scales may be removed by a careful use of soap and warm water, or by an alkaline lotion. This is the more expedient, because the scales in this situation are often intermixed with sordes, and pustules containing an acrimonious lymph are formed under the incrustations; and in this way pityriasis, as we have already observed, may, and occasionally does, degenerate into porrigo.

Mode of treatment.

The SECOND VARIETY, or RED DANDRIFF, sometimes affects the general health in a perceptible degree from the suppression which takes place in the perspiration, and the consequent dryness, stiffness, and soreness of the skin; and the general itching which hence ensues is often productive of much restlessness and langour. This, which is the severest modification of the disease, appears chiefly at an advanced period of life, though it is not limited to old age. A tepid bath of sea-water is, perhaps, the most useful application, as serving to soften the skin, and produce a gentle diapnoë. With this external remedy Dr. Willan advises we should unite the compound decoction of sarsaparilla, and antimonials, which operate towards a like effect. The tinctura hellebori nigri in small doses

β L. Pityriasis rubra. Red dandriff.

Mode of treatment.

Gen. IV. Spec. I. β L. Pityriasis rubra. Red dandriff. Treatment.

has also sometimes been found useful; and, where the irritability of the skin is not very great, Dr. Bateman was in the habit of using a gently restringent lotion or ointment, consisting of the acetate of lead with a certain proportion of borax or alum.

γ L. Pityriasis versicolor. Motley dandriff.

The variegated or MOTLEY DANDRIFF, pityriasis versicolor, often branches out over the arms, back, breast, or abdomen, but rarely in the face, like many foliaceous lichens growing on the bark of trees; and sometimes, where the discolouration is not continuous, suggests the idea of a map of continents, islands, and peninsulas, distributed over the skin.

Striking proof of an affection of the rete mucosum.

We have a more distinct proof of a morbid condition of the rete mucosum, or adipose colorific layer of the skin in this than in any other affection belonging to the entire genus. The morbid action, indeed, seems confined to this quarter and consists in the secretion of a tarnished pigment, though possibly, in some instances, it may be only discoloured by a mixture with a small portion of extravasated blood. And, were it not for the furfuraceous scales which determine its real nature, this affection would belong to the genus EPICHROSIS of the present order. There is no elevation; and the staining rarely extends over the whole body. Dr. Willan tells us that it seldom appears over the sternum or along the spine of the back. I had lately a patient, however, in a gentleman about forty years old, who was suddenly attacked with a discolouration and branny efflorescence of this kind, which extended directly across the spine over the loins, and very nearly girded the body. It continued upon him for about three years without any constitutional indisposition, or even local disquietude, except a slight occasional itching, and then went away as suddenly as it made its appearance. The hue was a fawn-colour: and, as the patient was anxious to lose it, he tried acids, alkalies, and other detergents of various kinds, but without any effect whatever. This variety of dandriff generally continues for many months, and not unfrequently, as in the present case, for several years. Being altogether harmless, it requires no medical treatment.

Relation to the genus epichrosis. Rarely appears over the spine, but sometimes. Strikingly exemplified.

Is of long continuance, sometimes for years.

The pityriasis nigra of Willan referred to by Bateman, but only glanced at by either of them, so far as I have seen it, is rather a modification of the genus EPICHROSIS, and species *Pœcilia*, under which it will be noticed. It is a cuticular discolouration but without cuticular exfoliation.

Gen. IV. Spec. I. γ L. Pityriasis versicolor. Motley dandriff. Pityriasis nigra of Willan.

SPECIES II.

LEPROSIS LEPRIASIS.

Leprosy.

PATCHES OF SMOOTH, LAMINATED SCALES; OF DIFFERENT SIZES, AND A CIRCULAR FORM.

Gen. IV. Spec. II. Vitiligo of Celsus. Origin of generic term. Lepriasis why preferred to lepra. Descriptions have been given with too little discrimination both in ancient and modern times.

THIS genus constitues the vitiligo of Celsus. The term LEPRIASIS is a derivative from λεπρὸς "scaber, vel asper ex squammulis decedentibus"; with a termination appropriated, by a sort of common consent, to the squammose tribe of diseases *. Lepra, which is the more common term, is derived from the same root: but lepriasis is preferred to lepra as a more general term, and hence better calculated to comprise the different varieties of this species so generally described or referred to by the Greek and Oriental writers, but whose descriptions, not very definite when first written, at least with a few exceptions, have been rendered altogether indefinite and incongruous in modern times, from a misunderstanding or confusion of the names under which the descriptions are given. It is to this cause we must ascribe it that even in the learned epitome of Dr. Frank lepra is made to include diseases so different, as genuine leprosy in all its forms, ichthyiasis, elephantiasis, and elephantia, which he distinguishes from elephantiasis from its locality and a few other symptoms †.

Bateman fully sensible of this.

The embarrassment, therefore, which Dr. Bateman felt upon this subject when writing on the genus ELEPHAN-

* See the Author's volume of Nosology. Prelim. Dis. p. 60.

† De Cur Hom. Morb. Epit. Tom. IV. p. 211. Mannh. 8vo. 1792.

GEN. IV. SPEC. II. Leprosis leprosis. Leprosy.

TIASIS, and which has been noticed already *, he was equally sensible of when he came to LEPRA, and the researches of Dr. Willan gave him little or no assistance. I could not then find time to render him the aid he stood in need of, but I have since directed my attention to the subject, and will now give the reader its results as briefly as possible.

Description of this and various cognate diseases in the Levitical code exact and admirable.

In the admirable and exact description of the cutaneous efflorescences and desquammations, to which the Hebrew tribes were subject on their quitting Egypt, and which they seem to have derived from the Egyptians, drawn up by Moses and forming a part of the Levitical law †, there are three that distinctly belong to the present species, all of them distinguished by the name of BERAT (בהרת) or "BRIGHT SPOT"; one called BOAK (בהק) which also imports brightness, but in a subordinate degree, being "a dull-white beras", not contagious, or, in other words, not rendering a person unclean, or making it necessary for him to be confined; and two called TSORAT (צרעת) "venom or malignity": the one a berat *lebena* or "bright-white berat" ‡, and the other a berat *cecha*, "dark or dusky berat" §, spreading in the skin; both of which are contagious, or, in other words, render the person affected with it unclean and exclude him from society ‖.

Three of them distinctly belong to the present species: Berat, Boak, and Tsorat.

The same three equally noticed and described by Arabic and Greek writers, but with much confusion of terms and symptoms.

The Arabic and Greek writers, have in fact taken notice of and described all these, but with so much confusion of terms and symptoms, from causes I will presently point out, that without thus turning back to the primary source it is difficult to unravel them or understand what they mean.

Boak a slighter and uncontaminating berat: the boak of the Arabians and alphos of the Greeks.

The boak, or slighter and uncontaminating berat, is still denominated by the same name among the Arabians, BOAK (بعاق), and is the λέπρα Αλφὸς or "dull-white leprosy" of the Greeks: while the bright-white and dusky berats of the Hebrews, which the latter distinguished on account of their malignity by the name of צרעת *(tsorat)*, are still called among the Arabians by the Hebrew generic term with a very slight alteration; for the berat *lebena*

Berat lebena of the Hebrews the

* Vol. III. Cl. III. Ord. IV. Gen. VIII. Spec. I.

† Levit. Cap. XIII. ‡ Id. Cap. XIII. 38, 39. § Id. v. 3. ‖ Id. v. 6. 8.

(בהרת לבנה) or bright-white berat of the Hebrew tongue, is the beras *bejas* (برص بياض) of the Arabic, and the berat *cecha* (בהרת כחה) or dusky berat its beras *asved* (برص اسود): the former of these two constituting the λέπρα Λευκὴ or "bright-white" leprosy of the Greeks, and the latter their λέπρα μέλας "dusky or nigrescent leprosy".

GEN. IV. SREC. II. Leprosis leprosy. Leprosy. beras bejas of the Arabians. The berat cecha of the Hebrews the Arabian beras asved; the melas of the Greeks. Whence the existing confusion has arisen.

So far the whole seems to run in perfect harmony: but as many of the Arabians, in process of time, used boak and beras indiscriminately, the different species of the disease as well as their qualities became immediately confounded, and we are told sometimes that leprosy is, and at other times that it is not unclean or contagious. And what increased the confusion is that the Arabians employed also another term of still wider import than either of these being قوبا (kuba or kouba), which imported scaly eruptions of every kind, running not merely parallel with the entire genus LEPIDOSIS before us, but something beyond, so as to include the humid as well as the dry scall; and consequently diseases of very different qualities and degrees of malignancy, contagious and uncontagious, cuticular and ulcerative. It is a term peculiarly common to the writings of Avicenna and Serapion. And as kouba, or with the article alkouba was also frequently applied to all the species of beras or leprosy, the real characters of the latter were rendered doubly doubtful and intricate. And hence a very obvious source of confusion upon this subject originating among the Arabians.

Kouba of the Arabians its real range and import: included the genus psoriasis as well as lepidosis. And was applied to all the species of beras or leprosy.

But while the Arabian writers borrowed two terms appropriated to the disease before us from the Hebrew tongue, beras and boak, and employed both of them in a loose and indefinite manner, the Greeks themselves borrowed one and employed it still more indeterminately; for from the Hebrew צרעת (tsorat) they obtained their ψώρα (psora)—as our own language has since the word SORE. Tsorat, as we have already seen, is restrained by the Hebrew legislator to the two forms of beras or leprosy which were contagious or rendered a man unclean; and as the Greeks introduced this term into their own tongue it would have been better to have restrained it to the same

While the Arabians borrowed berat and boak from the Hebrew and used them loosely, the Greeks from the Hebrew tsorat, borrowed psora, as the English have sore:

GEN. IV. SPEC. II. Leprosis lepriasis. Leprosy.

import, and to have used psora as the translation of tsorat. But the Greeks had the word lepra already by them, as significative of the same disease *generally*, or a synonym of berat or beras; and hence instead of psora they employed lepra which is the word made use of in the Greek, as well as in the Latin versions. As lepra, however, is a generic term and runs parallel with berat, so as to include the boak or uncontaminating, as well as the contaminating forms of the disease, the clearness, if not the entire sense, of the Hebrew is greatly diminished in the Greek version. When we are told by Moses, in the language of the *Hebrew* bible, that the priest shall examine the berat, or bright spot, accurately, and if it have the specific marks, it is a TSORAT (which the berat is not necessarily), we readily understand what he means. But when he tells us in the language of the *Greek* bible, that the priest shall look at the berat or τηλαυγὴς (which is itself necessarily a lepra), and if it have the specific marks it is a LEPRA, the meaning, to say the least of it, is obscure and doubtful. It is probable, however, that psora, when first introduced into the Greek tongue, imported the very same idea as in the Hebrew: but it soon gave way to the older term of lepra, and having thus lost its primitive and restricted signification, it seems to have wandered in search of a meaning, and had at different times, and by different persons, various meanings attributed to it; being sometimes used to express scaly eruptions generally, sometimes the scales of leprosy; but at last and with a pretty common assent the far slighter efflorescence of scaly tetters or scalls, denominated in the Levitical code saphat (ספחת): and by the Latins scabies or impetigo *sicca*: constituting the PSORIASIS, or ensuing species of the present classification. So that whilst in Hebrew, or under its primitive sense, tsorat or psora denoted the most malignant form of lepidosis, in Greek, or under its secondary sense, it denoted one of the mildest forms of the same. And hence, another source of confusion upon the subject before us originating among the Greek writers, as the preceding originated among the Arabian.

and used it with greater looseness, signifying not lepra as among the Hebrews, but a crustaceous and pustulous disease. Proof of confusion hence arising illustrated.

SEC. IV. SEC. II. Leprosis lepriasis. Leprosy.

Another source of perplexity from the use of lepra in the sense of elephantiasis.

Order attempted to be restored by Actuarius, but without effect:

And when to these two sources of perplexity we add that the Greek term lepra was, from a cause I have formerly explained, employed equally to express elephantiasis, we shall easily be able to account for the indefinite and incoherent descriptions of all these diseases which are given by many of the Greek and Arabian writers, and the inaccuracy with which the symptoms of one specific disease are run into another. Actuarius endeavoured to throw something of order into the midst of this confusion by contemplating all these maladies, in conjunction with lichen, as different forms of a common genus, and dividing them into four separate species: "A less violent disease", says he, "than elephantiasis is lepra; lepra is, however, more violent than psora, and psora than the lichenes. But lepra penetrates deep, forms circular eruptions and certain funguses or deliquescences of flesh (τινὰς σύντηξεις σαρκὸς) and throws off scales from which also it derives its name: while psora is more superficial, assumes indeterminate shapes, and only casts off furfuraceous corpuscles. A roughness and itching of the skin is common to both."* And to the same effect Paulus of Ægina.†

as some of the diseases he wished to connect are essentially remote from each other.

The real fact is, that the two last are nearly connected in nature, and in the present work follow in immediate succession, while both are widely remote from the first: and though it is possible they have occasionally terminated in it, are by no means naturally connected with it, or form a necessary harbinger.

The vitiligo of Celsus runs parallel with the berat of the Hebrews, and the description is drawn with peculiar accuracy: and both accounts concur in the following varieties.

Lepra or lepriasis in Celsus occurs under the name of vitiligo, and, like the berat of the Hebrew legislator, is made to include three modifications; the ordinary forms of it, indeed, that have descended to us, though delineated with much error and incongruity. The description of Celsus is drawn up with peculiar accuracy and concinnity, and makes the nearest approach to that of Moses of any I am acquainted with: and by uniting them and combining a few well ascertained symptoms from other authors,

* Actuar. De Meth. Medend. II. 11.

† Paul. Ægin. IV. 2.—Serapion. Breviar. Tr. V. Cap. IV.—Avicenn. Lib. 2. iii. 1.

GEN. IV. SPEC. II. Leprosis lepriasis. Leprosy.

we shall be able to obtain a pretty clear insight into the genuine characters of these modifications, freed from the extraneous concomitants that have so often bewildered us.

α Albida. Boak (בהק). Heb. Boak (بعاق) Arab. Alphos. (Ἀλφὸς) Auct. Gr. Cels. Common or dull-white leprosy.	Scales glabrous, dull-white, circular and definite; preceded by reddish, and glossy elevations of the skin; surrounded by a dry, red, and slightly elevated border: scattered; sometimes confluent; irregularly exfoliating and reproduced: rarely found on the face: not contagious.
β Nigricans. Berat cecha; Hebr. (בהרת כחה) Beras asved, Arab. (برص اسود) Melas (Μέλας) Auct. Gr. Cels. Dusky or black leprosy.	Scales glabrous, dusky or livid, without central depression, patches increasing in size; scattered, or confluent. Contagious.
γ Candida. Berat lebena. Hebr. (בהרת לבנה) Beras bejas. Arab. (برص بياض) Leuce (Λευκὴ). Auct. Gr. Cels. Bright-white leprosy.	Scales on an elevated base, glossy-white with a deep central depression; encircled with a red border; patches increasing in size: hairs on the patches white or hoary; diffused over the body. Contagious.

All these, at least in their origin, are strictly cutaneous affections: though we shall presently have to observe that the last two when they become inveterate, sometimes seem to affect the habit; and it is hence possible that the first may do so in a long course of time if neglected.

Gen. IV. Spec. II. a L. Leprisasis albida. Common or dull-white leprosy.

It is on this account that the boak, common or DULL-WHITE LEPROSY has been regarded as in every instance a constitutional malady by many writers of recent times; but it was not so regarded either by the best Greek and Arabian physicians, who also duly distinguished it from elephantiasis and other complaints with which it has been confounded by later writers; nor is it so regarded by Dr. Willan, who ascribes it chiefly to cold, moisture, and the accumulation of sordes on the skin, especially in persons of a slow pulse, languid circulation, and a harsh, dry, and impermeable cuticle: or whose diet is meagre and precarious. It is hence found chiefly in this metropolis among bakers and bricklayers' labourers: coal-heavers, dustmen, laboratory-men, and others who work among dry, powdery substances, and are rarely sufficiently attentive to cleanliness of person.

History of the disease.

In the common, and, perhaps, in all the varieties, the scaly patches commence where the bone is nearest to the surface, as along the skin about the elbow, and upon the ulna in the fore-arm, on the scalp, and along the spine, os ilium, and shoulder-blades. They rarely appear on the calf of the leg, on the fleshy part of the arms, or within the flexures of the joints. Both sides of the body are usually affected at the same time and in the same manner; but, contrary to the erysipelatous erythema and some other maladies of the skin, the parts first affected do not run through their action and heal as other parts become diseased, but continue with little alteration, till, from medical application or the natural vigour of the constitution, returning health commences; when all the patches assume a like favourable appearance at the same time, those nearest the extremities, and where the disease, perhaps, first showed itself, going off somewhat later than the rest. The scaly incrustations sometimes extend to the scalp, and a little encroach on the forehead and temples; but it is very rarely that they spread to the cheeks, chin, nose, or eyebrows. The eruption is seldom attended with pain or uneasiness of any kind, except a slight degree of itching when the patient is warm in bed, or of tingling on a sudden change of temperature in the atmosphere.

Progress, and termination.

Gen. III. Spec. II. a L. Lepriasis albida. Common or dull-white leprosy. This variety strictly cutaneous and of little importance. Illustrated from the Levitical account: and from Celsus.

We have said that this variety is strictly a cutaneous eruption, and rarely, if ever, affects the constitution. It is in consequence regarded as of but little importance in the Levitical code, which contemplates it as not penetrating below the skin of the flesh, and not demanding a separation from society. "If a man or a woman", says the Jewish law, "have in *the skin* of *their flesh* a berat, a white berat, then the priest (who after the manner of the Egyptians united the character of a physician with his own,) shall look; and, behold, if the berat in the skin of the flesh be dull, it is a BOAK *growing in the skin*: he is clean." * Not essentially different Celsus, "the vitiligo, though it brings no danger, is, nevertheless, offensive, and springs from a bad habit of body. The dull-white and the dusky forms in many persons spring up and disappear at uncertain periods. The bright-white when it has once made its attack, does not so easily quit its hold. The cure of the two former is not difficult: the last scarcely ever heals." †

Hence manifestly not contagious.

We may hence distinctly affirm that the variety of the dull-white or common leprosy, is not contagious: and had it been so among the Jews, Moses would have condemned the patient to a quarantine under this form, as well as under the two ensuing.

Opinion of Willan.

Dr. Willan, indeed, yielding to the general opinion upon this subject, derived from a proper want of discriminating one form of the disease from another, inclines to believe that it may occasionally become in time so interwoven with the habit as to be propagable, but still rejects the idea of its being contagious.

Though lazarettoes are often abroad allotted to all the varieties, the present is often regarded as not contagious. Illustrated in the Barbary states.

In reality, although in most countries where leprosy is a common malady, places of separate residence are usually allotted to those who are affected with it under whatever modification it may appear, this has rather been from an erroneous interpretation of the Jewish law, and an ignorance of the exceptions that are introduced into it. The lepers of Haha, a province in the Barbary states, though banished from the towns, are seen in parties of ten or twenty together, infesting the roads, and approach travellers to beg

* Levit. Cap. XIII. 38, 39. † De Medicinâ, Lib. v. Cap. XXVIII. Sect. 19.

charity. In Morócco they are confined to a separate quarter, or banished to the outside of the walls. They are, according to Mr. Jackson, but little disfigured by the disease, except in the loss of the eyebrows, which the females endeavour to supply by the use of lead-ore; while they give an additional colour to their complexion by the assistance of al akken or rouge.

Gen. IV. Spec. II. α L. Lepriasis albida. Common or white leprosy.

In like manner, Niebuhr asserts that one of the species of leprosy to which the Arabs are subject, is by them still called Boak; but that is neither contagious nor fatal. Upon which remark his annotator M. Forskâl adds, "the Arabs call a sort of leprosy in which various spots are scattered over the body Behaq; which is without doubt the same as is named בהק (bohak or behaq) in Lev. xiii. They believe it to be so far from contagious that one may lie with the person affected without danger. "On May 15, 1763," says he, "I saw at Mokha a Jew who had the leprosy bohak. The spots are of unequal size: they do not appear glossy; they are but little raised above the skin, and do not change the colour of the hair: the spots are of a dull-white inclining to red."*

Among other tribes.

Boak described by Forskâl at Mecca.

The NIGRESCENT LEPROSY forming the second variety, is improperly called *black*, though it was so named by the Greeks. The colour, as repeatedly described by the Jewish legislator, is rather obscure, darkling, or dusky. The term is כהה (cecha) whence the Latin cæcus: and it immediately imports obfuscous, or overcast with shade or smoke. The character in Celsus is in perfect accordance with this, as he explains to us that μέλας, or "niger", in its application to this variety, imports "umbræ similis", "shade-like", or "shadowed". The hue is tolerably represented in Dr. Willan's plate, but better in Dr. Bateman's, in which it has been retouched. The natural colour of the hair, which in Egypt and Palestine is black, is not changed, as we are repeatedly told in the Hebrew code, nor is there any depression in the dusky spot; while the patches, instead of keeping stationary to their first size,

β L. Lepriasis nigricans. Dusky or black leprosy. How described in the Levitical code. Character by Celsus.

Hair on the scall not changed in colour.

* Reisebeschreibung nach Arabien und andern umliegenden Ländern. Bind. Kopenhag. 4to. 1774.

GEN. IV. SPEC. II. β L. Lepriasis nigricans. Dusky or black leprosy.

A severer than the preceding variety, but less so than the subsequent.

Its character as it appears in our own country.

are perpetually enlarging their boundary. The patient labouring under this form was pronounced unclean by the Hebrew priest or physician, and hereby sentenced to a separation from his family and friends: and hence there is no doubt of its having proved contagious. Though a much severer malady than the common leprosy, it is far less so than the leuce or third variety: and on this account is described more briefly in the Hebrew canon. In our own quarter of the world the exfoliated surface in the nigrescent or dusky leprosy remains longer without new scales, discharges lymph, often intermixed with blood, and is very sore. When it covers the scalp it is particularly troublesome. With us it is chiefly found among soldiers, sailors, sculler-men, stage-coachmen, brewers' labourers, and others whose occupations are attended with much fatigue, and expose them to cold and damp, and to a precarious or improper mode of diet. For the same reason women habituated to poor living, and constant hard labour, are also liable to this form of the disease.

Greater predisposition to all the varieties of leprosy in hot than in cooler climates.

In consequence of the increased excitement and irritability of the skin in the hot and sandy regions of Egypt and Palestine, there is, however, a far greater predisposition to leprosy of all kinds, than in the cooler temperature of Europe. And hence, under the next variety, we shall have occasion to observe, from the Levitical account, that all of them were apt to follow upon various cracks or blotches, inflammations or even contusions of the skin.

γ L. Lepriasis candida. Bright-white leprosy.

Pathognomics as pointed out in the Levitical law.

The BRIGHT-WHITE LEPROSY, is by far the most serious and obstinate of all the forms which the disease assumes. The pathognomic characters dwelt upon by the Hebrew legislator in deciding it are, "a glossy-white and spreading scale upon an elevated base, the elevation depressed in the middle but without a change of colour, the black hair on the patches, which is the natural colour of the hair in Palestine, participating in the whiteness, and the patches themselves perpetually widening their outline." Several of these characters taken separately belong to other lesions or blemishes of the skin as well; and therefore none of them were to be taken alone: and

Several of these taken separately

it was only when the whole of them concurred that the Jewish priest, in his capacity of physician, was to pronounce the disease a tsorat (צרעת) or malignant leprosy. We have said that in lepriasis, the rete mucosum, or colorific adipose layer of the skin is peculiarly affected, and we have here a still more distinct proof of this assertion in the change of the hair, the colour of which is derived from this material. This change is produced by the barter of a black for a white colouring material, probably a phosphate of lime, which gives also the bright glossy colour, not hoary or dull, to the scaly patches; and which in ichthysiasis, forming the fourth species of the present genus, we shall find is occasionally deposited on the surface in prodigious abundance.

Gen. IV. Spec. II. γ L. Lepriasis candida. Bright white leprosy.

belong to other blemishes: when all must have concurred in forming a peorat or malignant leprosy.

Common as this form of leprosy was among the Hebrews, during and subsequent to their residence in Egypt, we have no reason to believe it was a family-complaint or even known amongst them antecedently: and there is hence little doubt, notwithstanding the confident assertions of Manetho to the contrary, that they received the infection from the Egyptians instead of communicating it to them. Their subjugated and distressed state, however, and the peculiar nature of their employment, must have rendered them very liable to this as well as to various other blemishes and misaffections of the skin: in the production of which there are no causes more active or powerful than a depressed state of body and mind, hard labour under a burning sun, the body constantly covered with the excoriating dust of brick-fields and an impoverished diet; to all of which the Israelites were exposed whilst under the Egyptian bondage.

Leprosy probably received by the Hebrews from the natives of Egypt.

Predisponent causes:

It appears also, from the Mosaic account, that in consequence of these hardships there was, even after they had left Egypt, a general predisposition to the tsorat or contagious form of leprosy, so that it often occurred as a consequence of various other cutaneous affections; sometimes appearing as a berat *lebena* (בהרת לבנה), or bright-white leprosy, and sometimes as a berat *cecha* (בהרת כהה), dusky leprosy, according to the peculiar habit or idiosyn-

producing a chronic predisposition.

Lesions and blemishes suspected as harbingers.

Gen. IV. Spec. II. γ L. Leprisis candida. Bright-white leprosy.

cracy. The cutaneous blemishes or blains which had a tendency to terminate in leprosy, and which were consequently watched with a suspicious eye from the first, are stated by Moses to have been the following:

1. Shaat (שאת) *. Herpes, or tetter, οὐλὴ, Sept. an irritated cicatrix.
2. Saphat (ספחת) †. Psoriasis, or dry scall.—Dry sahafata (سهفة). Arab.
3. Netek (נתק) ‡. Porrigo, or humid scall. Porrigo. Lat. vers. Jun. et Tremel. Moist sahafata (سهفة). Arab.
4. Berat (בהרת) §. Leuce, bright-white scale; the critical sign of contagious leprosy.
5. Boak (כהה) ‖. Alphos, dull-white scale: the critical sign of uncontagious leprosy.
6. Nega (נגע) ¶. Ictus, blow or bruise: ἁφὴ, Sept.
7. Shechin (שחין) **. Furunculus, or boil, as in Job, ii. 7.
8. Mecutash (מכות אש) ††. Anthrax, or carbuncle: literally "a fiery inflammation".

And hence by law professionally examined on their appearance: mode of examination and its consequences.

On the appearance of any one of these affections upon a person he was immediately brought before the priest for examination. If the priest perceived that in connection with such blemish there were the distinctive signs of a tsorat or contagious leprosy, as a bright glossy and squammous surface, with a depression in the middle, and white hairs, the person was immediately declared unclean and is supposed to have been sent out of the camp to a

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* Levit. Cap. xiii. 2, 10, 19, 43. † Id. v. 2, 6, 7, 8.
‡ Id. v. 30, 31. § Id. v. 2, et sæpè alibi. ‖ Id. v. 39.
¶ Id. v. 29. 42. ** Id. v. 18. †† Id. v. 24.

lazaretto provided for the purpose. If the priest had any doubt upon the subject, the person was put under domestic confinement for seven days, when he was examined a second time; and if, in the course of the preceding week, the eruption had subsided and discovered no tendency to the above distinctive characters, he was discharged at once. But if the eruption were stationary, and the result still doubtful, he was put under confinement for seven days more: at the expiration of which, on a third examination, the nature of the disease always sufficiently disclosed itself; and he was either sentenced to a permanent separation from the community, or pronounced clean, and set at liberty.

Gen. IV. Succ. II. γ L. Leprosis candida. Bright-white leprosy.

These doubtful cases, as we have just noticed, sometimes superinduced the bright-white, and sometimes the dusky leprosy, apparently according to the particular constitution of the skin, or of the habit generally. And we are further told that there were two ways in which the disease, and particularly the severest or bright-white form of it, terminated;—a favourable and an unfavourable. If it spread over the entire frame without producing any ulceration, it lost its contagious power by degrees; or, in other words, run through its course and exhausted itself. In which case, there being no longer any fear of further evil either to the individual himself or to the community, the patient was declared clean by the priest, while the dry scales were yet upon him, and restored to society *. If, on the contrary, the patches should ulcerate, and quick or fungous flesh (בשר חי) †, spring up in them, the priest was at once to pronounce it an inveterate leprosy ‡; a temporary confinement was declared to be totally unnecessary, and he was regarded as unclean for life. The accuracy with which this second termination is described, is fully confirmed by the passage quoted already, but for another purpose from Actuarius, and it is curious to observe how closely they coincide. "The lepra", says the latter, speaking of it in its worst form, "penetrates deep, forms

These precursors sometimes excited the leuce and sometimes the melas, according to the peculiarity of the constitution. Both terminated in two ways: a favourable, in which it lost its contagious powers, after having run its course: and an unfavourable, terminating in fungous ulcerations.

This termination confirmed by Actuarius.

* Levit. cap. xiii. v. 12, 13. † Id. v. 10, 14, 15. ‡ Id. v. 11.

GEN. IV. SPEC. II. γ L. Leprias candida. Bright-white leprosy. Beyond this nothing in the Mosiac account that approximates it to elephantiasis, the peculiar symptoms of which are not even glanced at.

circular eruptions and certain funguses or deliquescences of flesh." But we meet with nothing in the Mosaic account that approxiamates it to elephantiasis: nothing of a thick, rugose, livid, tuberculate, and, particularly, an insensible skin; nothing of fierce and staring eyes, hoarse, and nasal voice, or of a general falling off of the hair. And hence we have additional proof that these maladies were distinct, and unconnected. This malignant state of the disease, however, is still generally called, after the Greek misnomer, elephantiasis: and the two maladies in consequence hereof are to this hour confounded in the Greek islands, and even as far north as Iceland, the *ultima Thule* to which the literature of the Greeks has travelled: but we have sufficient proof in all these cases, from some of the best travellers of the present day, that the disease thus described is not the tubercular or thick-legged elephantiasis, but the above malignant form of genuine leprosy. Thus, Mr. Jowett, in his very interesting "Christian Researches in the Mediterranean," in describing the beautiful, but now, from its political reverses, most pitiable island of Haivali or Kydonia, near Scio, "a little farther on is the hospital for lepers: it was founded by a leper. Elephantiasis is no uncommon disorder in these parts: its effects are very offensive. I saw poor men and women with their fingers or legs literally *wearing* or *wasting away*"*:—forming a character directly opposite to what occurs in proper elephantiasis; where the limbs, though they continue to crack, continue to thicken enormously, even to the moment of separation. Dr. Henderson, on the contrary, while describing the real elephantiasis in Iceland, calls it the Jewish leprosy, and offers a sort of apology for Moses that he "has not noticed the very striking anæsthesia, or insensibility of the skin"†, which, continues he, "is an inseparable attendant of the genuine elephantiasis". The direct answer is that Moses delineates a different disorder and one in which no such symptom exists.

* Christian Researches in the Mediterranean. p. 65. 8vo. 1822.

† Iceland; or, the Journal of a Residence in that Island.

As leprosy, except in its less common and contagious modifications, has always been accounted a blemish rather than a serious disease in the East, the art of medicine has rarely, in that quarter, been gravely directed towards it, save in the use of the oxyde of arsenic, which is by far the most efficacious of every remedy that has hitherto been tried in any quarter. I have already had occasion to notice the preparation and proportion of this mineral, employed from time immemorial, in treating of elephantiasis, for which disease, also, it is in common use: and the reader may turn to the passage at his leisure. But, with the exception of arsenic, the remedies proposed by the Asiatics are trifling and little worthy of notice.

Gen. IV. Spec. II. γ L. Lepriasis candida. Bright-white leprosy. Medical science not often turned to its cure in the East with much seriousness, except in the use of arsenic.

In Europe the mode of treatment has, indeed, been far more complicated, but I am afraid not much more skilful or successful: consisting, till of late years, of preparations quite as insignificant as any that occur in the Arabian writers, and often highly injurious by their stimulating property. Of the insignificant the simplicity of modern practice has banished by far the greater number: and it is now, perhaps, hardly known to the general, or even to the medical botanist, that *meadow scabious*, and several other species of the same genus were so denominated from their being supposed, when employed as a wash in the form of decoction, to possess an almost specific virtue against leprosy, itch, and almost every other kind of foul and scabious eruption.

Treatment in Europe till of late futile and insignificant.

Warm bathing, simple or medicated; and this frequently repeated, is advantageous in all the varieties; for it tends to remove the scales, soften the skin, and excite perspiration. In the nigrescent leprosy, which proceeds chiefly from poor diet in connexion with sordes, the bath should be of pure fresh water, and the remainder of the cure will generally, in such case, depend upon a better regimen, and general tonics. In the other varieties, when they occur among ourselves, the sulphureous waters of Harrowgate, Croft, and Moffat, whether applied externally or internally, seem frequently to prove more efficacious. As external applications, most benefit appears to

Warm-bathing.

Sulphureous baths.

Gen. IV. Spec. II. Lepra is lepriasis. Leprosy. Treatment. Tar ointment. Solution of sublimate. Aromatic vinegar. Solanum Dulcamara.

be derived from the tar-ointment, as employed by Dr. Willis, and a dilute solution of sublimate, or the unguentum hydrargyri nitrati, as recommended by Dr. Willan. These medicines should be applied to the skin, and the former of them be well rubbed in upon the parts affected every night, and carefully washed off the next morning with warm water, a slight alkaline lotion, or the aromatic vinegar diluted with a third part water.

As internal medicines the most useful seem to have been the solanum *Dulcamara*, and ledum *palustre*, in decoction or infusion. Dr. Crichton strongly recommends the former, and speaks in high terms of its success. I have not been so fortunate in the trials I have given it. The ledum in Sweden *, and, indeed, over most parts of the north of Europe, as high up as Kamschatka, has long maintained a very popular character, and the form of using it is thus given by Odhelius in the Stockholm Transactions for 1774. Infuse four ounces of the ledum in a quart of hot water; strain off when cold; the dose from half a pint to a quart daily.

Ulmus campestris.

The bark of the ulmus *campestris* or elm-tree, has also been warmly recommended by various writers, for this, as well as numerous other cutaneous eruptions; and, in connexion with more active medicines, appears to have been of some use, but it is feeble in its effect when trusted to alone. Its form is that of a decoction, two ounces to a quart of water: the dose half a pint morning and evening †.

Œnanthe crocata.

The œnanthe *crocata*, or hemlock drop-wort, is another plant that has been recommended in obstinate and habitual cases of this kind; and there are unquestionable examples of its having produced a beneficial effect. Dr. Pulteney has especially noticed its success in a letter to Sir William Watson. The herb, however, is one of the most violent poisons we possess in our fields, and when mistaken for wild celery, water-parsnip, or various other

* Linnæus, Diss. de Ledo Palustri. Upsal. 1775.—Abhandl. der Königl. Schwed. Academie der Wissenschaffen. Band. XLI. p. 194.

† Medical Transactions, Vol. II. p. 208.

herbs, has frequently proved fatal a few hours after being swallowed, exciting convulsions, giddiness, locked-jaw, violent heat in the throat and stomach, and sometimes sickness, and purging: and where the patient has been fortunate enough to recover, it has often been with a loss of his nails and hair. Goats, however, eat it with impunity, though it is injurious to most other quadrupeds. As a medicine, it is given in the form of an infusion of the leaves: though sometimes the juice of the roots has taken the place of the leaves. Three tea-spoonfuls of the juice is an ordinary dose, which is repeated every morning.

Gen. IV. Spec. II. Leprosis lepriasis. Leprosy. Treatment.

But by far the most active and salutary medicine for every form of leprosy, in Europe as well as in Asia, is arsenic. I have already adverted to its common use in the latter quarter, and at home, in the form of the College solution, it has often been found to succeed, when every other medicine has been abandoned in despair. The ordinary dose is five minims twice or even three times a-day, increased as the stomach will allow, or till the patient appears to be over-dosed, when he will exhibit several or all of the following symptoms: head-ache, a pain and often a sense of inflation in the stomach and bowels, cough, restlessness, irritation in the skin generally, redness and stiffening of the palpebræ, soreness of the gums, and ptyalism.

Arsenic.

Symptoms of over-dose.

SPECIES III.

LEPIDOSIS PSORIASIS.

Dry-Scall.

PATCHES OF ROUGH, AMORPHOUS SCALES; CONTINUOUS, OR OF INDETERMINATE OUTLINE; SKIN OFTEN CHAPPY.

Psoriasis is a derivation of ψώρα, "scabies, asperitas", with a terminal ιτις, as in the preceding species. The primary term ψώρα, or psora, was used in very different

Gen. IV. Spec. III. Origin of generic term,

GEN. IV. SPEC. III. Lepidosis Psoriasis. Dry Scall.

senses among the Greek writers from a cause I have already explained under LEPRIASIS, where it had been shown that the real radical is the Hebrew term צרע (tsora), "to smite malignantly, or with a disease", whence צרעת (tsorat) imports the leprosy in a malignant or contagious form, but not in an uncontagious. The lexicographers not hitting upon the proper origin of ψώρα have supposed it to be derived from ψάω (psao), which means, however, unfortunately, "tergo, detergo", "to cleanse, purify, or deterge",—instead of "to pollute": but as one way of cleansing is by scraping, and, as persons labouring under psora scrape or scratch the skin on account of its itching, the difficulty is supposed to be hereby solved, and psora is allowed to import derivatively, what, upon this explanation, it opposes radically.

which was formerly used in a different sense. Proper root the Hebrew tsorat. How derived by the lexicographers.

The actual origin of the term, however, is of little importance. It was mostly employed by the Greek writers, and has been very generally so in modern times, to import a dry scall or scale, for the terms are univocal, the Saxon sceala or scala being the origin of the former, and denoting the latter, of a rough surface and indeterminate outline, as expressed in the specific definition.

Its present use.

Psoriasis, as thus interpreted, is the dry Sahafati (ψάω) of the Arabian writers, the ספחת Saphat of the Levitical code, as already explained; the Arabic being derived from the Hebrew root. It embraces the following varieties:

Synonymous with the dry Sahafati of the Arabians.

α Guttata. Guttated dry scall.	Drop-like, but with irregular margin. In children contagious.
β Gyrata. Gyrated dry scall.	Scaly patches in serpentine or tortuous stripes. Found chiefly on the back, sometimes on the face.
γ Diffusa. Spreading dry scall.	Patches diffuse, with a ragged, chapped, irritable surface: sense of burning and itching when warm: skin gradually thickened and furrowed, with

	a powdery scurf in the fissures. Extends over the face and scalp.	Gen. IV. Spec. III. Lepidosis Psoriasis. Dry scall.
δ Inveterata. Inveterate dry scall.	Patches continuous over the whole surface; readily falling off and reproducible with painful, diffuse excoriations. Extend to the nails and toes, which become convex and thickened. Found chiefly in old persons.	
ε Localis. Local dry scall.	Stationary and limited to particular organs.	

In the FIRST or GUTTATED VARIETY, the patches very seldom extend to the size of a sixpence; and are distinguished from those of leprosy by having neither an elevated margin nor an elliptic or circular form, often spreading angularly, and sometimes running into small serpentine processes. The eruption commences in the spring mostly on the limbs, and appears afterwards distributed over the body, sometimes over the face. It subsides by degrees towards the autumn, and sometimes re-appears in the spring ensuing. α L. Psoriasis guttata. Guttated dry scall. Description.

In children, probably from the greater sensibility of their skin, this variety of scall spreads often with great rapidity, and is scattered over the entire body in two or three days.

The SECOND or GYRATED VARIETY runs in a migratory course, and apes the shape of earth-worms or leeches when incurvated, with slender vermiform appendages. Not unfrequently the two ends meet, and give the scall an annulated figure like a ring-worm, particularly about the upper part of the shoulders or on the neck, in which case they are sometimes confounded with shingles or some other modification of herpes. β L. Psoriasis gyrata. Gyrated dry scall. Description.

The SPREADING SCALL commences commonly on the face or temples, as the first of the preceding does on the extremities, and the second on the back. It is sometimes confined to a single patch, which nevertheless, is occa- γ L. Psoriasis diffusa. Spreading dry scall. Description.

Gen. IV. Sect. III.

γ L. psoriasis diffusa. Spreading dry scall. Description.

sionally to be seen in some other part, as the wrist, the elbow-joint, breast, or calf of the leg. It is often obstinate and of long duration, and has been known to continue for a series of years: in which cases, however, there is usually an aggravation or extension of it at the vernal periods. It is at times preceded by some constitutional affection; and at times seems to produce the same. When limited to the back of the hand this, like some other forms of lepidosis, is vulgarly called the *Baker's Itch*. On the hands and arms, and sometimes on the face and neck, it is peculiarly troublesome to washerwomen; probably from the irritation of the soap they are continually making use of.

Baker's Itch.

δ L. Psoriasis inveterata. Inveterate dry scall. Description.

The inveteracy of the FOURTH VARIETY seems principally to spring from the general torpitude and want of power in the class of persons whom it chiefly attacks, which is those who are in the decline of life. It is accompanied with painful excoriations, in many instances occasioned by the pressure of some parts of the clothing against the sores, or by the attrition of contiguous surfaces, as of the nates, groins, thighs, and scrotum. At an advanced period of the disease, the cuticle is often still more extensively destroyed; and the extremities, the back, and nates have been seen excoriated at the same time, with a very profuse discharge of thin lymph from the surface: after which the discharge itself thickens, from an absorption of the finer parts, and forms a dry, harsh, and almost horny cuticle, which progressively separates in large pieces. At first, this variety intermits in the summer, but at length becomes permanent and intractable.

ε L. Psoriasis localis. Local dry scall. Common to shoemakers and metallurgic artizans.

The LOCAL VARIETY is found chiefly on the lips, eyelids, prepuce, scrotum, and inside of the hands. It is peculiarly common to shoemakers, and artificers in metallic trades, as braziers, tinmen, and silversmiths; probably from filth and the irritation of the substances they make use of.

The dry scall in one variety or other very common, and in the first some-

The DRY SCALL, under one or other of the above forms, is one of the most frequent cutaneous diseases in this kingdom, and the first variety, guttated or drop-scall, psoriasis guttata, is sometimes contagious in irritable skins,

and especially among children. Several of these modifications are also found, occasionally, as symptoms or sequels of lues, particularly the first three; but are in every instance distinguishable by the livid or chocolate hue of the scales.

Gen. IV. Spec. III: a L. psoriasis localis. Local dry scall: sometimes contagious. Often a symptom or sequel of other complaints.

As cutaneous sordes, in connexion with a peculiarity in the constitution of the skin, and especially in connexion with a meagre diet, indolence, and want of exercise, appears to be the general cause of this as well as of many other, perhaps most other simple cutaneous eruptions, the first principles of a curative intention must consist in washing and softening the skin by warm bathing, regularly persevered in; and in improving the diet, and exciting to a life of more activity. Beyond this the common treatment of psoriasis should be, with little exception, that of lepriasis: and hence the alterant and stimulant ointments of sulphur and tar in equal proportions; lotions of diluted aromatic vinegar, or nitrate of silver, and the sulphureous waters of Harrowgate, Croft, Sharpmore, Broughton, Wrigglesworth, and other places, used both externally and internally, will succeed better than common spring or river-water as detergents. Chalybeate medicines, and particularly chalybeate waters, have been powerfully recommended by Dr. Willis and many others: but, excepting where the disease is combined with a languid circulation, as in the inveterate form, and demands excitement, these do not appear to be of any certain efficacy. Bleeding and the repetition of purgatives are of no avail though a common practice with many, and founded also on the authority of Dr. Willis. "Strong mercurial preparations", observes Dr. Willan, "are of no advantage, but eventually rather aggravate the complaint." Nor do the fresh juices of the alterant plants, scurvy-grass, succory, fumitory, or sharp-pointed dock, appear to be of any material benefit. The solution of arsenic, however, has seemed at times to restore the habit to a healthy re-action.

Medical treatment. Cleanliness, pure air, and plain, but nutritive food, warm-bathing:

Sulphureous waters.

Chalybeate waters less generally useful.

Bleeding and repeated purges of no avail.

A gentle purgative should open the course of medical treatment; to which should succeed an internal use of the fixed alkalies with precipitated sulphur, and decoctions

Alkalies, sulphur, alterant diet drinks, sometimes

Gen. IV. Spec. III. Lepidosis Psoriasis. Dry scall. Treatment.

of elm-root, sarsaparilla, sassafras, mezereon, or dulcamara; and where the skin is very dry an antimonial at night, or five grains of Plummer's pill, the compound submuriate mercurial pill of the London College. Yet here, as in the preceding species, the most effectual remedy, in obstinate cases, is the arsenic solution, with an abstinence from fruits, acids, and fermented liquors: under which plan in conjunction with the above regimen, most of the ordinary cases will be found to disappear in about three weeks or a month.

antimonials or mercurials, arsenic solution.

Sulphur vapour-bath,

How far the sulphureous vapour bath may succeed in any of the varieties of this as well as of the ensuing, and of several other species, has not hitherto been sufficiently determined. M. Galés of Paris, and, in consequence of his recommendation, M. de Carn of Vienna, have tried it upon an extensive scale, and apparently with considerable success *. But, as in most other cases of a new invention, it is represented as being successful in such a multiplicity of diseases, and diseases essentially dissimilar, that its very popularity abroad has operated against a free and decisive trial of its powers among the more cautious practitioners of our own country. A few institutions, however, I am glad to find, are at length founded both in this metropolis and in Dublin for the laudable purpose of carrying on a full investigation; so that we shall soon be enabled to draw a correct estimate †.

at Paris, Vienna,

London and Dublin.

* Ueber Kraetze, und derem bequemste schnell-wirkendeste und sicherste Heilart; &c. von D. Karsten, &c. &c. Hanover 1818.

† Observations on Sulphureous Fumigation as a Remedy in Rheumatism and Diseases of the Skin. By W. Wallace, &c. Dublin 1820.

SPECIES IV.

LEPIDOSIS ICHTHYIASIS.

Fish-Skin.

THICK, INDURATED INCRUSTATION ENCASING THE SKIN TO A GREATER OR LESS EXTENT; SCALINESS IMPERFECT.

Gen. IV. Spec. IV. Origin of specific term.

THE specific term is derived from *ἰχθὺς* "piscis" with the terminal adjunct of the preceding species. The word is commonly written, but less correctly ichthyosis, since, as I have already observed, the suffix *iasis* is by general consent applied to all species appertaining to the genus or tribe of diseases before us.

Pathological explanation.

In treating of the genus PAROSTIA* as well as in various other places, I have had occasion to observe that the calcareous earth which the assimilating powers of the animal frame elaborate from the materials of the food or of the blood, for the use of the bones, to give them increased size and solidity in adolescence, and to maintain their firmness in mature life, is, in many cases, secreted irregularly; sometimes in excess, sometimes in deficiency, and sometimes imperfectly, or without a due proportion of phosphoric acid, and other constituents: while, on the other hand, in the advance of old age, although the secretion may not be much disturbed as to its quantity or quality, in the process of carrying off the waste matter the finer parts alone are removed in consequence of the debility of the absorbents, and the bones become brittle and easily broken.

Analogical connexion with lithia.

In the genus LITHIA we have seen that one of the outlets for the discharge of the waste calcareous earth is the kidneys: and that when these are supplied with an excess of earth, or a quantity beyond what the uric acid will hold in solution, it is apt to subside, accumulate, and concrete, and consequently to form calculi.

* Suprà, p. 323.

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With paruria erratica.

We have also seen under PARURIA ERRATICA as well as under LITHIA that the excretories of the skin become at times an outlet of the same kind for the removal of calcareous earth, whence the calcareous deposits in gout and the calcareous scurf which is often accumulating on the head of those who perspire much.

Earthy secretion in this species also thrown forth in excess, sometimes so as to encase it, and thicken and harden the integument.

In the disease before us the cutaneous excretories throw forth such an excess of this earthy material that it often encases the entire body like a shell; and the cutis, the rete mucosum, and the cuticle being equally impregnated with it, the order of the tegumental laminæ is destroyed, and the whole forms a common mass of bony or horny corium, generally scaly or imbricate, according as the calcareous earth is deposited with a larger or smaller proportion of gluten, in many instances of enormous thickness, and sometimes giving rise to sprouts or branches of a very grotesque appearance: thus offering to us numerous varieties, of which the following are the chief:

α Simplex. Simple Fish-skin.	The incrustation forming a harsh papulated or warty rind; hue dusky; subjacent muscles flexible. Sometimes covering the whole body except the head and face, palms of the hands, and soles of the feet.
β Cornea. Horny Fish-skin.	The incrustation forming a rigid, horny, imbricated rind; hue brown or yellow; subjacent muscles inflexible. Sometimes covering the entire body including the face and tongue.
γ Cornigera. Cornigerous Fish-skin.	The incrustation accompanied with horn-like, incurvated sproutings; sometimes periodically shed and reproduced.

Lepidosis Ichthyiasis. Fish-skin. General description.

This indurated incrustation commences with a change in the papillæ of the cutis, which are elongated and enlarged into roundish cones or tubercles, often void of sensation. Some of the scaly papillæ have a short, narrow neck, and broad irregular tops. Sometimes the scales are flat and large, and imbricate or placed like tiling, or the scales on the back of fishes, one overlapping another. They also differ considerably in colour in different instances, and are blackish, brown, or white. The skin, to a very considerable extent, has sometimes been found thickened into a stout, tough leather. In a singular enlargement of the lower extremity produced by a puerperal sparganosis, Mr. Chevalier found the thickness of the corium in some parts near a quarter of an inch; which, on being cut into, presented the same grained appearance that is observable in a section of the hides of the larger quadrupeds. Below the coriaceous skin the adipose membrane exhibited an equal increase of substance, and in front of the tibia was not less than an inch and a half thick. Mr. Machin gives a very extraordinary case of ichthyiasis of the same kind, originating, indeed, from a different and unknown cause, which covered the whole body with the exception of the head and face, the palms of the hands, and the soles of the feet. The entire skin formed a dusky, ragged, thick case, which did not bleed when cut into or scarified, was callous and insensible, and was shed annually like the crust of a lobster, about autumn, at which time it usually acquired the thickness of three-fourths of an inch, and was thrust off by the sprouting of a new skin beneath *. This man married, and had a family of six children, all of whom possessed the same ragged covering as himself. The father was twice salivated for the complaint, and threw off the casing each time, as did one of the children during the small-pox; but the disease soon returned on both of them. In the Transactions of the Medico-Chirurgical Society, there

Striking illustration.

Additional illustration.

* Phil. Trans. No. 424.

GEN. IV. SPEC. IV. Lepidosis Ichthyiasis. Fish-skin.

is a case in which the face alone was exempted from the fish-scale covering *.

Said to be indigenous among the inhabitants of Paraguay.

There is a remarkable passage in the Lettres Edifiantes et Curieuses, of the Jesuits, which intimates that this disease is by no means uncommon among the inhabitants of Paraguay; the words, which have been quoted by M. Buffon and Dr. Willan, are as follow: "Il regne parmi eux une maladie extraordinaire: c'est une espece de Lèpre qui leur couvre tout de corps, et y forme une croûte semblable à des ècailles de poisson: cette incommodité ne leur cause aucune douleur, ni même aucun autre dérangement dans la santé."† There is perhaps no part of the world where we should sooner expect to meet with this, and indeed various other species of squammose or leprous affections of the skin, considering the sultry heat of the atmosphere, the rankness of the perspiration that issues from the bodies of the natives, and their deficiency in personal cleanliness; yet I do not know that the same account has been given by any other travellers, and have looked in vain over Estalla and Dobrizhoffer: nor does this particular incrustation of the skin seem to be prevalent in other inland countries exposed to the same excitements, though most of them exhibit squammose disorders of the surface of some kind or other.

This statement explained.

Often shows itself locally,

In our own country it often shows itself locally and is restricted to a single limb, as an arm, leg, or soles of the feet, and it has sometimes fixed on a cheek, an interesting figure of which is given in Dr. Bateman's Delineations.

and is accompanied with a sprouting of horns. Exemplified.

Examples of the cornigerous variety, or that in which the incrustation is accompanied with a sprouting of horns or horn-shaped projections are by no means uncommon. Sir Everard Home has given two cases in the Philosophical Transactions that occurred within his own knowledge. The patients were women, about the middle of life, or rather later: one had four horns, and the other a single horn. Each of them grew from a cyst which form-

* Trans. Medico-Chir. Soc. Vol. IX. p. 52.

† Recueil des Lettres, &c. XXV. p. 122.

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ed gradually, and at last opened spontaneously and discharged "a thick gritty fluid."* The foreign journals are full of similar accounts, in some of which the horns are of considerable length, mostly growing upon the head, though in a few instances on the back†. In the British Museum is shown us, as a curiosity, a horn of this kind eleven inches long, and two and a half in circumference at the base. It is said to have issued from a wen that formed in the head of a woman, and to have reached its full length in four years.

Striking example in a Leicestershire heifer.

When these are single they rather perhaps belong to the genus ECPHYMA, and particularly the species verruca and clavus; but they are very frequently connected with a dry furfuraceous or scaly skin, often oozing a calcareous material. A very singular example of this complex modification occurred a few years ago in a Leicestershire heifer which was publicly exhibited, and of which the author presented a description and a drawing to the Royal Society. The whole of the skin was covered with a thick, dry, chalky scurf, often producing an itching; and where ever the skin was scratched, a calcareous fluid oozed from it that soon hardened, and put forth corneous, recurvating excrescences, frequently divaricating, and assuming sometimes a leafy, sometimes a horn-shaped appearance. The back was covered with them; over the forehead and below the dew-lap they hung in some hundreds; many as large as natural horns, and rattling together whenever the animal moved. The heifer was otherwise in good health, and secreted the same chalky fluid whatever food it was fed upon.

Medicine of little avail. How far recommended.

Medicine has hitherto been found of but little avail under any form of this affection. Dr. Willan advises to immerse the incrusted part in water, and to pick off the scales with the finger-nails, while thus soaked. Dr. Bateman recommends that the bath should be of sulphureous waters, and the scales rubbed off with a flannel or rough

* Phil. Trans. Vol. LXXXI. 95.

† Eph. Nat. Cur. Dec. I. Ann. I. Obs. 30.—See also Hist. de la Societé Royal de la Medicine, 1776, p. 316.

GEN. IV. SPEC. IV. Lepidosis Ichthyiasis. Fish-skin.

cloth. But both admit that their methods produce only a partial cure; that the skin does not recover its proper texture, and that the eruption will probably recur. Dr. Bateman further recommends, as having been actually serviceable, pills made of pitch hardened by flour or any other farinaceous substance, which makes the cuticle crack and fall off, as he tells us, without the aid of external means, and leaves a sound skin underneath. Where there is an evident excess of calcareous earth the most efficacious remedy is probably to be found in a free use of acids, and especially the mineral acids, as in white urinary sand *, to which this disease bears a near resemblance. The arsenic solution, however, is worth trying, but I have no documents of its effects.

In some cases acids may be of considerable service.

Arsenical solution.

* Suprà, p. 503.

GENUS V.

ECPHLYSIS.

Blains.

ORBICULAR ELEVATIONS OF THE CUTICLE CONTAINING A WATERY FLUID.

GEN. V. Origin of generic term.

ECPHLYSIS (Ἔκφλυσις, from ἐκφλύζω, "ebullio", "effer-veo", "to boil or bubble up or over",) imports "vesicular eruption confined in its action to the surface"; as EMPHLYSIS, which we have long since described *, is "vesicular eruption essentially connected with internal and febrile affection". The term is intended to include all those utricles, or minute bladders of the cuticle containing a watery fluid, and not necessarily connected with internal disease, whether *bullæ* or *vesiculæ*, between which Dr. Willan has made but little difference in his definitions, except in respect to size; and which were equally denominated by the Greek physicians phlyctænæ, a term derived from the present source. And hence the species that fairly appertain to this genus, appear to be the following:

Its import and range.

1.	ECPHLYSIS POMPHOLYX.	WATER-BLEBS.
2.	——— HERPES.	TETTER.
3.	——— RHYPIA.	SORDID BLAIN.
4.	——— ECZEMA.	HEAT-ERUPTION.

* Vol. III. p. 38.

SPECIES I.

ECPHLYSIS POMPHOLYX.

Water-blebs.

ERUPTION OF BLEBS, CONTAINING A REDDISH, TRANSPARENT FLUID; MOSTLY DISTINCT; BREAKING AND HEALING WITHOUT SCALE OR CRUST.

GEN. V. SPEC. I. Origin of specific term.

POMPHOLYX or pomphus, was used amongst the Greek writers in the same sense as PEMPHIX, of which we have treated already *, and equally imported a bladdery tumour of the skin, distended with a fluid: the Latins denominated it bulla, of which our own term WATER-BLEB is an apt and exact representative. PEMPHIX in the modern use of the term, is necessarily accompanied with fever, and hence under the present arrangement is an EMPHLYSIS, as POMPHOLYX, being without fever or other constitutional affection necessarily connected with it, is an ECPHLYSIS. The latter is hence denominated Pemphigus apyretos by Plenck, and Pemphigus sine pyrexiâ, by Sauvages. It has, however, been properly separated from pemphigus by Dr. Willan, who has arranged it as it stands in the present work. It offers the four following varieties:

Pemphix.

Pemphigus apyretos of Plenck.

α Benignus. Mild water-blebs.	Blebs pea-sized, or filbert-sized; appearing successively on various parts of the body; bursting in three or four days, and healing readily.
β Diutinus. Lingering water-blebs.	Blebs gradually growing from small vesicles to the size of walnuts; yellowish: often

* Vol. III. p. 68. Emphlysis Pemphigus.

	spreading in succession over the whole body, and interior of the mouth; occasionally reproduced, and forming an excoriated surface with ulceration. Often preceded by languor, or other general indisposition for several weeks. Duration from two to four or five days.
γ Quotidianus. Quotidian water-blebs.	Blebs with a dark red base, appearing at night and disappearing in the morning, or appearing in the morning and disappearing at night. Found chiefly on the hands and legs.
δ Solitarius. Solitary water-bleb.	Bleb solitary; but reproductive in an adjoining part; very large, and containing a tea-cup-full of lymph. Preceded by tingling: often accompanied with languor.

Quotidian variety introduced from Sauvages, who calls it epinyctis.

The third, or quotidian variety, is here introduced upon the authority of Sauvages, for it does not occur in Willan, who seems to have overlooked it: and hence it is not noticed by Bateman. Sauvages, from the time of its more usual appearance, calls it *epinyctis*; but as Vandermonde has given a case of an opposite kind, in which the bulla showed itself daily and subsided nightly, this name will not properly apply. Frank regards it as a variety of exzema, or hidroa*, but his arrangement of eruptive diseases is one of the least masterly parts of his work.

An eczema or hidron of Frank.

General causes.

Under whatever form, however, the pompholyx appears, its causes seem to be debility and irritability either general or confined to the cutaneous exhalants. The benign

* De Cur. Hom. Morb. Tom. IV. p. 159.

Gen. V. Spec. I. Ecphlysis Pompholyx. Water-blebs. Benign variety found in infancy. Quotidian the most severe.

variety has hence been found in infancy during teething and bowel complaints, and occasionally immediately after vaccination. The quotidian has evidently succeeded to great anxiety, fatigue, watching, and low diet. It appears also chiefly in persons of advanced age, or who have been unduly addicted to spirituous liquors. It is by far the most severe of all the forms of the disease, as being painful as well as tedious. The other varieties are to be referred to like causes.

Medical treatment.

In early or middle life, Peruvian bark given freely, with an improved diet, where necessary, has formed the most successful remedy. In old age, softening the skin, and gently exciting the cutaneous exhalants, has been equally useful: but while the bark is less serviceable in old age, warm bathing has proved rather injurious in earlier life.

SPECIES II.

ECPHLYSIS HERPES.

Tetter.

ERUPTION OF VESICLES IN SMALL, DISTINCT CLUSTERS; WITH A RED MARGIN; AT FIRST PELLUCID, AFTERWARDS OPAKE; ACCOMPANIED WITH ITCHING OR TINGLING; CONCRETING INTO SCABS: DURATION FROM FOURTEEN TO TWENTY-ONE DAYS.

Gen. V. Spec. II. Origin of specific term. Has been used in different senses.

Herpes from ἕρπω, "serpo", "repo", has been used in very different senses by different writers: being sometimes restricted to one or two of the modifications of the present classification, and by others extended so widely as to include both the preceding and the ensuing genus—or, in other words, cutaneous eruptions, dry, vesicular, and pustular; and in this latitudinarian sense of the term it is employed by Mr. B. Bell, who gives us a herpes farinosus, and pustulosus, as well as a herpes miliaris and exedens.

Gen. V. Spec. II. Ecphlysis Herpes. Tetter.

In the present arrangement the term is limited to minute and clustering *cutaneous vesicular eruptions* alone, which forms a clear and distinctive indication. The fluid contained in the vesicles is for the most part highly acrimonious and excoriating; and hence the terms δάρσις and δαρτὸς (darsis and dartus) "excoriatio and excoriatus", have been applied to it; from which the French have derived their popular name for it of dartre, which, by an easy corruption, has been changed in our own tongue into tetter. Dr. Frank has made herpes a division of porrigo *, in doing which, instead of simplifying and generalizing cutaneous eruptions, which was obviously his intention, he has rather perplexed and confounded them.

Import in the present arrangement.

Dartus.

With Frank a porrigo.

The following are the varieties which seem fairly to belong to it:

α Miliaris. Miliary tetter.	Vesicles millet-sized; pellucid; clusters commencing at an indeterminate part of the surface, and progressively strewed over the body; succeeded by fresh crops.
β Exedens. Erosive tetter.	Vesicles hard; of the size and origin of the last; clusters thronged; fluid dense; yellow or reddish; hot, acrid, corroding the subjacent skin, and spreading in serpentine trails.
γ Zoster. Shingles.	Vesicles pearl-sized; the clusters spreading round the body like a girdle; at times confluent. Occasionally preceded by general irritation or other constitutional affection.

* De Cur. Hom. Morb. Epit. Tom. IV. p. 133.

Gen. V. Spec. II. Ecphlysis Herpes. Tetter.

δ	Circinatus. Ring-worm.	Vesicles with a reddish base, uniting in rings, the area of the rings slightly discoloured; often followed by fresh crops.
ε	Iris. Rain-bow-worm.	Vesicles uniting in small rings, surrounded by four concentric rings of different hues; vesicular and prominent. Usually found about the hands or instep.
ζ	Localis. Local tetter.	Limited to particular organs; stationary, or vicinous.

α E. Herpes miliaris. Miliary tetter. Description.

The FIRST, or MILIARY VARIETY, is the herpes miliaris of Hippocrates and Hoffman, the h. phlyctenodes of Bateman. The cause of the peculiar irritability of the skin that excites this affection is very obscure. The lymph contained in the vesicles is sometimes brownish, and for the space of two or three days, other clusters successively arise near the former. The eruption commences in any part of the body. The inclosed lymph sometimes becomes milky or opake in the course of ten or twelve days, from an absorption of its finer parts; and about the fourth day the inflammation around the vesicles assumes a duller red hue, while the minute utricles break and discharge their fluid; or dry into scales, which fall off, and leave a considerable degree of inflammation below, that still continues to exude fresh matter, which also forms into cakes, and falls off like that which preceded. The itching is always very troublesome: and the matter discharged from the vesicles is so tough and viscid, that every thing applied in the way of dressing adheres very closely, and is removed with great trouble and uneasiness.

β E. Herpes exedens. Erosive tetter. Esthiomenos of the Greeks what. Herpes exedens.

To the SECOND or EROSIVE VARIETY, the Greeks gave the name of ἕρπης ἐσθιόμενος, or "herpes esthiomenos", of which the Latin herpes exedens is a mere translation. The herpes esthiomenos, however, has hitherto been much misunderstood, and been held of a far severer character than it really possesses, in consequence of an error that

has long since crept into the text of Celsus, and been propagated in the common editions, in which he is made to say that the livid and fetid ulcer which the Greeks called θηρίωμα, sometimes degenerates into a herpes esthiomenos, or exedens, "eating herpes"; as though the herpes exedens formed the worst and most gangrenous stage of this ulcer. In the volume of Nosology I have examined this passage critically, and have shown that for herpes esthiomenos we ought to read φαγέδαινα, "the ulcer called *phagedæna*", as it is properly given in the corrected text of the variorum edition, which settles the dispute at once, and clears Celsus from the absurdity which has been ascribed to him of converting a cutaneous vesicular affection into a deep spreading ulcer of a cancerous character. Celsus, therefore, in reality makes no mention whatever of the herpes exedens or esthiomenos; and it is to other writers we must turn for its character. Galen has described it very accurately: and in the volume of Nosology I have copied and translated Galen's description, as it occurs in different parts of his writings. The definition given of it above, is entirely taken from his representation. The ulcerative ring-worm of Dr. Bateman is, perhaps, a modification of this variety: it is of tedious and difficult cure, but is limited to hot climates.

GEN. V. SPEC. II. β E. Herpes exedens. Erosive tetter.

Correction of the common text of Celsus.

Where this variety is connected, as it is sometimes found to be, with the state of the constitution, and particularly of the stomach, and the patches are accompanied with a sensation of actual burning or scalding, so as to resemble a more papulated form of measles, like the measles of this modification, they are denominated nirles in some parts of Scotland.

Under what modification called nirles.

The THIRD VARIETY, HERPES ZOSTER, is the zona ignea of many writers, both which terms imply a belt or girdle, and are evidently given to the eruption from its ordinary seat and course as surrounding the body. The Latin word for these is *cingulum*, and from cingulum our own SHINGLES has been derived in a corrupt way.

γ E. Herpes zoster. Shingles. Zona ignea.

A slight constitutional affection sometimes precedes the appearance of this form, as sickness and head-ache,

Description. Origin.

GEN. V. SPEC. II. γ E. Herpes zoster. Shingles. Zona ignea.

but by no means generally; for in most instances the first symptoms are those of heat, itching, and tingling in some part of the trunk, which, when examined, is found to be studded with small red patches of an irregular shape, at a little distance from each other, upon each of which numerous minute elevations are seen clustering together. These, when accurately inspected, are found to be distinctly vesicular; in the course of twenty-four hours they enlarge to the size of small pearls, are perfectly transparent, and filled with a limpid fluid. The clusters are of various diameter, from one to two, or even three inches, and are surrounded by a narrow red margin, in consequence of the extension of the inflamed base a little beyond the congregated vesicles. During three or four days other clusters continue to arise in succession, and with considerable regularity, that is nearly in a line with the first, extending always towards the spine at one extremity, and towards the sternum or linea alba at the other; most commonly passing round the waist like half a sash, but sometimes, like a sword-belt, across the shoulder. As the patches which first appeared subside, the vesicles become partially confluent, and assume a livid or blackish hue, and terminate in thin dark scabs, the walls of the utricles being thickened by the exsiccation of the grosser parts of the contained fluid. The scabs fall off about the twelfth or fourteenth day, when the exposed surface of the skin appears red and tender; and, where the ulceration and discharge have been considerable, is pitted with numerous cicatrices. The complaint is generally of little importance, but is sometimes accompanied, especially on the decline of the eruption, with an intense deep-seated pain in the chest, which is not easily allayed by medicine. By some authors, as Hoffman and Platner, it is said to be occasionally malignant and dangerous, and Languis alludes to two cases in noblemen that terminated fatally *. The disorder, however, seems in these instances to have been of a different kind from shingles,

Progress.

Termination.

Complaint generally of little importance.

But is said to have terminated fatally in cases probably mistaken.

* Epist. Med. p. 110.

and to have depended upon a morbid state of the constitution *.

GEN. V. SPEC. II. γ E. Herpes zoster. Shingles. Zona ignea. Predisposing and occasional causes.

This affection is found most frequently in the summer and autumn, when the skin is most irritable from increased action; and in persons of a particular diathesis, disposed to herpes, rather than to any other form of scaly eruption. Under these circumstances slight exciting causes will produce it, as exposure to cold after violent exercise with great heat; cold cucurbitaceous vegetables, or other substances that disagree with the stomach; inebriety; or even a sudden paroxysm of passion or other strong mental emotion, of which Schwarz tells us that he had seen not less than three cases †. It is more common to early than to later life, being found principally between twelve and twenty-five years of age. It has sometimes appeared critical in bowel complaints, or pulmonic affections ‡. It does not seem to be contagious, though asserted to be so by some writers. "In the course of my attendance", says Dr. Bateman, "at the Public Dispensary during eleven years, between thirty and forty cases of shingles have occurred, none of which were traced to a contagious origin, or occasioned the disease in other individuals."

Not contagious, though asserted to be so by some writers.

The RING-WORM is a still slighter variety of herpes than shingles, both with respect to disquieting symptoms, and range of the disease. Here the vesicles are restricted to the circumference of the herpetic patch, thus forming an annular outline; the central area, however, in some degree participating in the inflammation, becomes roughish and of a dull red colour, and throws off an exfoliation as the vesicles decline, leaving a red and tender surface beneath. The process is completed in about a week: but a fresh crop of herpetic circles often spring up in the neighbourhood, or in some other part of the body; and, as such crops are occasionally repeated

δ E. Herpes circinatus. Ring-worm. Description.

* Plumbe, on Diseases of the Skin, p. 140. 8vo. 1824.

† Diss. de Zonâ Serpiginosâ. Hal. 1745.

‡ Bateman on Cutaneous Diseases, p. 227. 8vo. 1813.

Gen. V. Spec. II. § E. Herpes circinatus. Ring-worm.

many times in succession, the course of the disease is not unfrequently protracted through a long period, and migrates over the entire surface from face to foot. Yet no other inconvenience attends it than a disquieting itching and tingling in the patches. It is found most frequently in children, and, though deemed contagious, affords no real ground for such an opinion. It has, indeed, been traced in some instances, in several children of the same school or family at the same time; but perhaps only where the same occasional cause, whatever that may be, has been operating upon all of them: while in most instances, the examples have consisted in single patients who have not been debarred communication or even sleeping with their school-fellows, or other branches of a family.

Termination.

Found chiefly in children.

Probably not contagious.

§ E. Herpes Iris. Rain-bow worm.

The RAIN-BOW WORM or tetter is of a rare occurrence, and was by Dr. Willan at first mistaken for an exanthem, in consequence of his having only seen it in its earliest stage: on which account in the first edition of his Table of Classification he called it a rain-bow rash. The error has been corrected by Dr. Bateman, to whom we are indebted for the first accurate description of it. Its usual seat is on the back of the hands, or the palms and fingers, sometimes on the instep. The patches are very small, and at their full size do not exceed that of a sixpence. Its first appearance is that of an efflorescence, but by degrees the concentric and iridescent rings become distinctly formed and vesiculated, and even the area partakes of the vesication and becomes an umbo. The utricles are distended in about nine days, they continue stationary for two days more, and then gradually decline, and disappear a week afterwards. The central vesicle is of a yellowish-white colour; the innermost ring of a dark or brownish-red; the second of nearly the central tint; the third, which is narrower than the rest, is dark-red; the fourth, or outermost, which does not appear till the seventh, eighth, or ninth day, is of a light-red hue, and is gradually lost in the ordinary colour of the skin.

Mistaken by Willan for a rash.

Usual seat.

Origin.

Progress.

Decline.

Only found in young persons.

This variety has only been seen in young persons, and is unconnected with any constitutional affection. Its

exciting cause is not known: though it has occasionally followed a severe catarrhal affection, accompanied with hoarseness. It has also occasionally recurred several times in the same person, always occupying the same parts and going through its course in the same periods of time.

Gen. V. Spec. II. ι R. Herpes Iris. Rain-bow worm.

The LOCAL RING-WORM is accompanied with a considerable sense of heat and itching or tingling irritation in the region in which it originates. That of the lip renders the adjoining parts hard, and tumid, and painful, and especially the angle of the mouth; the form is usually semicircular; and though the herpes does not spread to any considerable distance, it is sometimes found at the same time within the mouth, forming imperfect rings on the tonsils and uvula, and producing an herpetic sore throat. It usually appears, however, as a symptom or sequel of some disease of the abdominal viscera, and sometimes proves critical to them. It terminates, as in other cases, in ten or fifteen days in dark thick scabs, which form over a red and tender new cuticle.

ζ E. Herpes localis. Local tetter. Of the lip: within the mouth:

The local ring-worm of the prepuce is apt to be mistaken at first for a chancre, and still more so, if, under the influence of this mistake, it be treated with irritants; for the base will then become much more thickened and inflamed, and the natural course of the vesicles will be interrupted. If the eruption be left alone, it will prove itself in about twenty-four hours by the enlargement and distinct form of the vesicles, and their assuming an annular line. They die away after having run their course, as in the other varieties. The exciting cause of this is not known. It has been ascribed, however, by Mr. Pearson, to a previous use of mercury. Like several of the other modifications it has a tendency to recur, after it has once shown itself.

of the prepuce: apt to be mistaken for a chancre. How to be distinguished.

No internal use of medicine is necessary in the treatment of any of the varieties of herpes, except where the constitution becomes affected from the irritation; and in such case, a gentle purgative or two should be administered at first, and a plan of tonics be laid down afterwards, the diet being simple and plain.

General medical treatment.

Gen. V. Spec. II. Ecphlysis Herpes. Tetter. Treatment.

External applications are almost of as little avail, for the eruption must have time to run through its course, and if this be interrupted we shall certainly prolong the period, and add to the irritation. Stimulating ointments and lotions were in use formerly but they have now been judiciously laid aside as only tending to exacerbate the affection. Where from the viscosity of the discharged fluid the vesicles are apt to adhere to the clothes or whatever covering they come in contact with, they may be covered with a layer of cetaceous cerate on lint: but a layer of lint alone will be most useful in the local variety of the prepuce, as even oleaginous applications are apt to irritate the disease when in that quarter. Dr. Frank affirms that herpes is sometimes congenital, sometimes hereditary, and sometimes epidemic: but as he has blended herpes with porrigo, and has not indicated the particular forms of disease he alludes to, it is no easy task either to confirm or oppose the remark*.

SPECIES III.

ECPHLYSIS RHYPIA.

Sordid Blain.

ERUPTION OF BROAD, FLATTISH, DISTINCT VESICLES; BASE SLIGHTLY INFLAMED: FLUID SANIOUS; SCABS THIN AND SUPERFICIAL: EASILY RUBBED OFF AND REPRODUCED.

Gen. V. Spec. III.

For a distinct arrangement of this species in medical classification, we are altogether indebted to Dr. Bateman,

Rupia of Bateman.

who has denominated it *rupia*, from ῥύπος, "sordes", as indicative of the ill-smell and sordid condition of the diseased parts: and in his Delineations has given two very excellent and instructive coloured plates of its appearance

Name why changed.

under different modifications. Ῥύπος, however, with its

* De Cur. Hom. Morb. Epit. ut supra.

aspirate and the ordinary power of the *v* should be rendered in Latin characters RHYPIA as now given, and only altered for the sake of greater correctness. GEN. V. SPEC. III. Ecphlysis Rhypia. Sordid blain.

The species offers three varieties as follow:

α Simplex. Simple sordid blain.	Scab flat; livid or blackish; shape circular.
β Prominens. Limpet-shelled blain.	Scab elevated, conical, and blackish; shape, limpet-shelled.
γ Escharotica. Erosive blain.	Sanious discharge erosive, producing gangrenous eschars.

The vesicles under this species never become confluent: their progress is slow, and leads to an ill-conditioned discharge which concretes into thin, superficial, and chocolate-coloured scabs, of the distinctive characters noticed above. When the ulcers under the scab, in the two first varieties, heal, they still leave the surface of a livid or blackish colour, as if from a pigment in the rete mucosum. The second variety assumes the direct form and swell of a small limpet-shell with its open part downwards, but its colour is much darker*. General remarks. Limpet-shelled variety.

All the modes of this eruption are connected with a debilitated, and hence frequently with a cachectic state of the system, and the first is sometimes accompanied with symptoms resembling those produced by a morbific poison. They occasionally make a near approach to the ecthymata† but differ in the form, shape, and size of the vesicle, and in the colour and consistence of the contained fluid, as consisting of flattened muddy blains, and forming larger and more circular scabs.

The escharotic variety affects only infants and young children when reduced by bad diet and nursing, or some severe disease, as the small-pox. The vesicles are generally found on the loins, thighs, and other extremities, and appear to contain a corrosive sanies: some of them Escharotic variety.

* Bateman, ut suprà, p. 237.

† See the ensuing Genus, Species III. Ecpyesis, Ecthyma

GEN. V. SPEC. III. Ecphlysis Rhypia. Sordid blain. Mode of treatment.

frequently terminate in gangrenous eschars, which leave deep indentations.

The disease is only to be combated by supporting the system, and restoring it to a state of vigour by means of good, light, nutritious diet, and the use of alterative and tonic medicines, as the compound pill of the submuriate of mercury, bark, columbo, and sarsaparilla.

SPECIES IV.

ECPHLYSIS ECZEMA.

Heat Eruption.

ERUPTION OF MINUTE, ACUMINATED VESICLES, DISTINCT, BUT CLOSELY CROWDING ON EACH OTHER; PELLUCID OR MILKY; WITH TROUBLESOME ITCHING OR TINGLING; TERMINATING IN THIN SCALES OR SCABS; OCCASIONALLY SURROUNDED BY A BLUSHING HALO.

GEN. V. SPEC. IV. Origin of specific term. Ordinary cause excess of heat.

ECZEMA from ἐκζέω, "efferveo", is the hidroa of Sauvages and Vogel: it is common to all countries in the summer, and has been described in all ages. Its proximate cause is irritation in consequence of exposure to the direct rays of the sun, or to air heated to a high temperature, or violent exercise. Hence it chiefly affects those parts that are most exposed to this influence, as the face, neck, and fore arms in women, but particularly the back of the hands and fingers; the latter being sometimes so tumefied that the rings cannot be drawn off. The blushing halo by which they are surrounded is popularly called a *heat-spot*. In men of a sanguine temperament, and who use violent exercise in hot weather, these vesicles are intermixed in various places with minute pustules possessing a hard, circular base, the phlyzacium of Willan, or with hard and painful tubercles, which appear in succession, and rise to the size of small boils, and suppurate very

Often connected with phlyzaciæ or tubercles.

slowly, though without a central core. The vesicles are apt to be confounded with two other eruptions of very different kinds; miliaria, while it spreads widely over the body, and scabies, when fixed chiefly about the wrists, the ball of the thumbs, and the fingers. It is, however, distinguishable from the former by being unaccompanied with fever or any other constitutional derangement; and from the latter by the pellucidity and acumination of the vesicles, the closeness and uniformity of their distribution, and the absence of surrounding inflammation, or subsequent ulceration. The sensation, moreover, to which it gives rise, is that of a smarting or tingling rather than of an itching.

Gen. V. Spec. IV. Ecphlysis Eczema. Heat eruption.

Sometimes confounded with miliaria, or scabies.

How distinguishable.

The eruption is irregularly successive, and has no determinate period of decline, which very much depends upon the irritability of the skin itself. Generally, however, it runs its course in two or three weeks, and subsides slowly and almost imperceptibly. But where the skin is highly irritable it will sometimes continue till the weather grows cool in the autumn, and consequently for two or even three months.

Progress.

Medicine external or internal seems to accomplish but little. The re-action of a cold bath, in most cases, increases the irritation: and hence a tepid bath is most serviceable. Astringent lotions add equally to the irritability, as do unguents of all kinds. Washing the parts with mild or Windsor soap and tepid water, I have found most effectual—when, in a few days, the skin will bear a soap of a coarser kind with still more advantage. Where the irritability of the skin is connected with that of the general frame, the mineral acids, and other astringent tonics, have proved decidedly beneficial.

Medical treatment.

The eczema *impetiginodes* of Dr. Bateman is an eczema set down on an impetiginous habit of the skin, and is hence a mixed complaint. His eczema *rubrum* or *mercuriale* has already been described as an erythema*.

Eczema impetiginodes of Bateman.

* Erythema vesiculare. Vol. II. p. 359.

GENUS VI.

ECPYESIS.

Humid Scall.

ERUPTION OF SMALL PUSTULES DISTINCT OR CONFLUENT; HARDENING INTO CRUSTULAR PLATES.

GEN. VI. Origin of the generic term. How distinguished from empyesis.

ECPYESIS is a Greek term from ἐκπυῶ, "suppuro". It is here used in contradistinction to EMPYESIS already employed * to import deep-seated suppurations; and consequently is intended to describe pustular eruptions simply cutaneous, or not necessarily connected with internal affection as opposed to those which result from an internal cause. The genus, therefore, embraces the pustulæ of Dr. Willan, which he has correctly defined "elevations of the cuticle with an inflamed base containing pus".

Origin of the old English term scall.

The old English term for ecpyésis or pustula in this sense of the word is *scall*, from the Saxon scala or sceala, not essentially different from the medical sense of scale. The scall was of two kinds, dry and moist: both which

Arabic and Hebrew synonyms. Saphata netek.

are clearly referred to in the Levitical law that governed in the matter of plague. The former is there denominated ספחת (saphat), as we have already observed when treating of lepra, and the latter, or the eruption before us, נתק (netek) †. The Arabians, like our own ancestors, denominated both these by a common name (سپتة) (sahafata) from (سپف) (sahaf), squammæ, or rather from the Hebrew ספחת (saphat): distinguishing the one from the other, like our ancestors also, by the adjuncts dry and humid: so that the sahafata of the Arabians is a direct synonym of the old English or Saxon scale. In

Ecpyesis the netek of the Levitical code;

our established version the Hebrew נתק (netek), which imports the eruption before us or *humid* scall, is by mis-

* Vol. III. p. 77. † Leviticus xiii. 30, 31.

take rendered *dry* scall, which, as remarked above, is a כפחת (saphat). The expletive *dry* does not occur in the original, and that נתק (netek) denotes humid scall rather than dry scall is clear from the explanation contained in the bible-context, in which it is represented as a scall seated on the hair or beard, and affecting its strength and colour, forming so thick a crust, or scab, that its removal by shaving cannot be accomplished, or ought not to be attempted. It is distinctly, therefore, a porrigo or scabby scall, and is thus verbally rendered in the Latin version of Tremellius and Junius, forming one of the species of the present genus; and seems to be one of the two modifications of it which, in our own language, are denominated honeycomb-scall, and scalled-head. Θραῦσμα, by which *netek* is rendered in the Septuagint, is literally *crust*, a very significant term in common use to express the peculiar nature of the scab that hardens on the porriginous sore. Tetter, a corruption from the French dartre, or the Greek δαρτὸς, has of late years been used synonymously with scall, and has almost supplanted it: but the proper meaning of dartre, or tetter, is herpes, to which, in this work, it is confined, an excoriating eruption of a vesicular or ichorous kind.

GEN. VI. Ecpyesis. Humid Scall.

which is rendered porrigo by several of the Latin versions.

Thrausma what.

Tetter whence derived.

The species that belong to this genus are the following:—

1. ECPYESIS IMPETIGO. RUNNING SCALL.
2. ——— PORRIGO. SCABBY SCALL.
3. ——— ECTHYMA. PAPULOUS SCALL.
4. ——— SCABIES. ITCH.

All these specific terms have been very loosely employed, and in very different significations by most writers. They are here limited to the definite senses assigned them by Dr. Willan; and, with the exception of ecthyma, by Celsus, whom Willan has followed. Ecthyma does not occur in Celsus, though it is found in Galen, but in a sense somewhat different from its use in modern times, as will be further noticed hereafter.

All these terms have been loosely employed formerly.

SPECIES I.

ECPYESIS IMPETIGO.

Running Scall.

PUSTULES CLUSTERING, YELLOW, ITCHING; TERMINATING IN A YELLOW SCALY CRUST, INTERSECTED WITH CRACKS.

GEN. VI. SPEC. I. THE specific term is a derivative from impeto "to infest"; it is used in its ordinary and restrained sense as opposed to the unauthorised latitude assigned to it by Professor Frank, who, as already observed, employs it as the name for an entire class, and the following are the varieties the species offers us:

α Sparsa. Scattered humid Scall.	Clusters loose; irregularly scattered; chiefly over the extremities; often succeeded by fresh crops.
β Herpetica. Herpetic Scall.	Clusters circular, crowded with pustules, intermixed with vesicles; often with exterior concentric rings surrounding the interior area as it heals; itching accompanied with heat and smarting. Chiefly in the hands and wrists.
γ Erythematica. Erythematic Scall.	Pustules scattered; preceded by erythematic blush and intumescence; often by febrile or other constitutional affection. Chiefly in the face, neck, and chest.

δ Laminosa. Laminated Scall.	Pustules confluent; chiefly in the extremities; the aggregate scabs forming a thick, rough, and rigid casing around the affected limb, so as to impede its motion; a thin ichor exsuding from the numerous cracks.	GEN. VI. SPEC. I. Ecpyesis Impetigo. Running Scall.
ε Exedens. Erosive Scall.	The purulent discharge corroding the skin and cellular membrane.	
ζ Localis. Local humid Scall.	Confined to a particular part; mostly the hands or fingers; and produced by external stimulants, as sugar or lime.	

General remarks.

The differences are sufficiently clear from these definitions. The first variety, or SCATTERED HUMID SCALL, has sometimes been confounded with varieties of PORRIGO and SCABIES, constituting two subsequent species of the present genus. It differs from porrigo, however, in having the purulent discharge succeeded by an ichorous humour soon after the eruption has shown itself, and in the possession of a thinner and less extensive scab. It differs from scabies in its more copious exsudation of ichor, when the latter is secreted, in the magnitude and slower progress of the utricles, and in the sensation of heat and smarting, rather than of itching which accompanies it. And differs from both in being uncontagious.

α E. Impetigo sparsa. Scattered humid scall: has been confounded with porrigo and scabies.

How distinguishable.

γ E. Impetigo erythematica. Erythematic variety, humid scall.

The ERYTHEMATIC FORM commences with the ordinary signs of an erysipelas, as a redness and puffy swelling of the upper part of the face, with an edema of the eyelids; and the irritation is sometimes accompanied with some degree of pyrexy for two or three days But a critical eye will easily perceive that, instead of the smooth polish of the erysipelas, there is a slight inequality on the surface as if it were obscurely papulated, and in a day or two the disease will show its true character by the form-

How distinguishable from erysipelas.

GEN. VI. SPEC. I. γ E. Impetigo erythematica. Erythematic variety, humid scall.

ation of numerous psydracious pustules over the inflamed and humid skin, instead of the large irregular bullæ of the erysipelas. The pustules are formed with a sense of heat, smarting and itching, and, as they break, they discharge a hot and acrid fluid, which adds to the irritation and excoriation of the surface. In this painful condition the face, or other part, remains for ten days or a fortnight, when the discharge begins to diminish, and to concrete into thin yellowish scabs. Fresh pustules, however, arise in the neighbourhood, and the disease runs on from one to two or three months, according to the irritability of the skin and its tendency to be affected by continuous sympathy. It has sometimes perambulated the entire surface from head to foot: during the whole of which course the constitution is scarcely disturbed, or in any way affected.

δ E. Impetigo laminosa. Laminated humid scall.

The LAMINATED HUMID SCALL is sometimes conjoined in the lower limbs with cellular dropsy, and produces severe ulceration: and its casing or incrustation occasionally extends to the fingers and toes, and destroys the nails; being succeeded by nails of an imperfect fabrication, thick, notched, and irregular.

ε E. Impetigo exedens. Erosive humid scall.

The EROSIVE FORM is rare, and highly intractable. It commences on the side of the chest or trunk of the body, and gradually extends itself. The pustules are here intermixed with vesicles, the fluid is peculiarly acrid and erosive, and the skin and cellular texture are slowly, but deeply and extensively destroyed, with very great pain and irritation: insomuch that the disease is said by some, though with little foundation, to be of a cancerous nature.

ζ E. Impetigo localis. Local humid scall.

Grocer's Itch. Bricklayer's Itch.

The LOCAL FORM is mostly produced by the use of irritant materials, constantly applied to the parts affected, which are chiefly the hands, as sugar among the labourers in grocery warehouses, and lime among bricklayers. Whence this variety has been vulgarly called *Grocer's Itch*, or *Bricklayer's Itch*. According to the peculiar character of the skin the eruption is sometimes vesicular, and belongs to the preceding genus, being a modification of eczema; but more generally pustulous, and appertains

to the genus before us. In neither instance does it seem to be contagious.

Gen. VI. Spec. I. ζ E. Impetigo localis. Local humid scall. Uncontagious.

Most of the causes enumerated under LEPRIASIS, and many of the species of ECPLHYSIS operate in the present species, as general debility or relaxation, with a skin peculiarly irritable; poor diet; filth; fatigue; and local stimulants. And hence, where the constitution seems to catenate with the disease, the same general remedies have been found successful; as the alkalies, sulphur taken freely, Plummer's pill, the alterative decoctions or infusions of dulcamara, ledum palustre, juniper-tops, sarsaparilla, and mezereon; together with a frequent use of warm bathing for the purpose of purifying and softening the skin. In connexion with these we should have recourse to such external applications as may best tend to diminish the irritability of the cutaneous vessels and give tone to their action. The most useful of these are the metallic oxydes, with the exception of those of lead which are rarely useful, at least if employed alone: and are often found injurious. About ten grains of sublimate dissolved in a pint of distilled water, with a small proportion of muriated ammonia, will frequently prove a valuable remedy. Or the oxyde of zinc may be applied in the form of an ointment, which I have often found serviceable, prepared in the manner already noticed under the species prurigo. Lime-water is also recommended by many writers, and has proved useful as a stimulant astringent; as have also solutions of alum, and sulphate of zinc, and sulphuret of potash, the old liver of sulphur: but I have found them less useful than the zinc ointment.

General causes. Medical treatment. Alterants. External applications. Metallic tonics and astringents. Lime-water.

The acrid oil contained in the shell of the cashew-nut has often been employed with great advantage in some of these varieties and especially where the disease is decidedly local, and a local change of action is the grand desideratum. In many cases, however, the skin is too irritable for stimulants of any kind, and will only bear warm water, or a decoction of mallows, poppy-heads, or digitalis: after which the excoriated surface may be illined with cream or an emulsion of almonds. In general, never-

Cashew-nut oil. Skin will not always bear stimulants.

Gen. VI. Spec. I. Ecpyesis Impetigo. Running Scall. Treatment.

theless, astringent stimulants agree far better with this affection than with herpes. The burning and maddening pain in the erosive scall can rarely be alleviated but by opium. The Harrowgate waters are generally recommended, and in many instances have certainly been found useful.

SPECIES II.

ECPYESIS PORRIGO.

Scabby Scall.

PUSTULES STRAW COLOURED; CONCRETING INTO SCALES OR YELLOW SCABS.

Gen. IV. Spec. II. Porrigo of Celsus and Willan.

THIS is the PORRIGO of Celsus and Willan, from *porrigo* "to spread about"; and the tinea of Sauvages and most of the nosologists. It offers the following varieties:

α Crustacea. Milky Scall. — Pustules commencing on the cheeks or forehead in patches; scabs often confluent, covering the whole face with a continuous incrustation. Found chiefly in infants during the period of lactation.

β Galeata. Scalled-head. — Pustules commencing on the scalp in distinct, often distant patches; gradually spreading till the whole head is covered as with a helmet; cuticle below the scabs, red, shining, dotted with papillous apertures, oozing fresh matter; roots of the hair destroyed: contagious. Found chiefly in children during dentition.

γ **Favosa.** **Honey-comb scall.** Pustules common to the head, trunk, and extremities; pea-sized; flattened at the top; in clusters, often uniting; discharge fetid; scabs honey-combed, the cells filled with fluid. Found both in early and adult age.

δ **Lupinosa.** **Lupine-scall.** Pustules minute in small patches, mostly commencing on the scalp; patches terminating in dry, delving scabs resembling lupine seeds; the interstices often covered with a thin, whitish, exfoliating incrustation. Found chiefly in early life.

ε **Furfuracea.** **Furfuraceous scall.** Pustules very minute, with little fluid; seated on the scalp: terminating in scurfy scales. Found chiefly in adults.

ζ **Circinata.** **Ring-worm scall.** Clusters of very minute pustules seated on the scalp in circular plots of baldness with a brown or reddish, and somewhat furfuraceous base. Found chiefly in children.

α E. Porrigo crustacea. Milky scall. Crusta lactea, or Tinea lactea of authors. Croute de lait.

Commencement.

The FIRST VARIETY is the crusta *lactea* of numerous authors, the tinea *lactea* of Sauvages, so called from the milky or rather the creamy appearance and consistency of the discharge, whence the French name of croute de lait, and our own of milky scall. It is almost exclusively a disease of infancy, at which period the skin of the head is peculiarly tender and delicate. It commences ordinarily on the forehead and cheeks in an eruption of numerous minute and yellowish white pustules, which are crowded together upon a red surface, and break and discharge a viscid fluid that concretes into thin yellowish scabs. As the pustular patches spread the discharge is

GEN. VI. SPEC. II. α R. Porrigo crustacea. Milky Scall.

renewed, and continues to be thrown forth from beneath the scabs increasing their thickness and extent till the forehead, and sometimes the cheeks and entire face become covered as with a cap; the eye-lids and nose alone remaining free from the incrustation. The quantity of the discharge varies considerably, so that in some instances the scabs are nearly dry. As they fall off and cease to be renewed, a red and tender cuticle is exposed to view, like that in impetigo, but without a tendency to crack into fissures. Smaller patches are occasionally formed about the neck and breast, and even on the extremities, and the disease runs on for several weeks, sometimes several months: during which the constitution suffers but little except from a troublesome itching which sometimes interferes with the rest, and destroys the digestion. And, where the last takes place, a foundation is immediately laid for general debility, and especially for torpitude and enlargement of the mesenteric glands. In many instances the eruption returns at irregular intervals, after having appeared to take its leave; apparently reproduced by cutting additional teeth, or some other irritation. Dr. Strack affirms that, when the disease is about to terminate, the urine acquires the smell of that voided by cats; and that, where there is no tendency to this change of odour, the disease is generally of long continuance. It is singular that, notwithstanding the extensive disfigurement and sometimes depth of the ulcerations, no permanent scar or deformity is hereby produced.

Progress.

Termination.

β E. Porrigo galeata. Scalled-head. Description. Commencement.

The SECOND VARIETY or SCALLED HEAD originates generally in the scalp, and consists of pustules somewhat larger, and loaded with a still more viscid material than the first. The pustules are circular in form with a flattish, and irregular edge. They sometimes commence on the cheeks, but where the face is affected the ordinary course is from the scalp towards the cheeks by the line of the ears. They are usually accompanied with a considerable degree of itching, and harass children from six months to four or five years of age. The disease is rarely found in adults. From the quantity of the discharge the hair is

Progress.

matted together, the scabs become considerably thickened, the ulceration spreads into the integuments, and the indurated patches seem, in some cases, to be fixed upon a quagmire of offensive fluid. The lymphatic system, if not in a state of debility before the appearance of the eruption, soon becomes affected and exhibits marks of irritation, but whether from general debility or absorbed acrimony it is difficult to say. The glands on the side of the neck enlarge and harden, exhibiting at first a chain of small tumours lying loose under the skin; after which some of them inflame, the integuments become discoloured, and a slow and painful suppuration ensues. The ears unite in the inflammation, and from behind them, or even from their interior a considerable quantity of the same viscous and fetid fluid is poured forth. In some cases the submaxillary and parotid glands catenate in the inflammatory action. The fluid is peculiarly acrimonious, and consequently whatever part of the body it lights upon accidentally becomes affected by its influence. Hence the arms and breasts of nurses evince frequently the same complaint, and other domestics receive the disease by contagion. Its duration is uncertain, but it is more manageable than the preceding species: and if not maintained by the irritation of teething or any other excitement, it may be conquered in a few weeks.

GEN. VI. SPEC. II. β E. Porrigo galeata. Scalled-head. Lymphatic system soon affected. Glandular tumours. Fluid peculiarly acrimonious. Duration uncertain.

The HONEY-COMB SCALL, OR THIRD VARIETY, differs very little from the preceding except in the seat of the patches and in an increased size and thickness of the scab, which is often cellular or honey-combed. And as pustules of this form have been called favi, from their resemblance to honey-combs, this variety of the disease from the time of Ali Abbas to the present has been distinguished by the name of tinea favosa, scabies favosa, or porrigo favosa. By Dr. Bateman it is united with the preceding variety. The colour of the scab is yellowish or greenish, and semitransparent, its surface highly irregular, and indented, and its consistency softish. The pustules are found on the face, trunk, and extremities. The irritation they produce excites the little sufferer to be perpetually picking and

γ E. Porrigo favosa. Honey-comb scall. Nearly related to the preceding. Tinea favosa. Scabies favosa of authors.

Gen. VI. Spec. II. γ E. Porrigo favosa. Honey-comb scall. Odour so rank and offensive often to inflame the eyes of nurses.

scratching them about the edges, by which means the skin is kept sore and the ulceration extended. This is particularly the case about the heels and roots of the toes, the extremities of which last are sometimes ulcerated, while the pustules even creep under the nails. The odour from this and the preceding variety is not only most rank and offensive to the smell, but occsionally inflames the eyes of nurses and others who are officially surtounded by its vapour.

δ E. Porrigo lupinosa. Lupine scall.

The LUPINE VARIETY is peculiarly characterized by the driness of its scabs, which are formed upon small clusters of minute pustules, the finer part of whose fluid is rapidly absorbed, so that the part remaining concretes, and shows in the central indentations of its surface a white scaly powder. The size of the scab is that of a sixpence: it is found in the head, and in other parts, but, when in other parts than the head, it is often much smaller in diameter, and sometimes does not exceed two lines. It is liable to increase if neglected, and is usually tedious and of long duration.

ε E. Porrigo furfuracea. Furfuraceous scall.

Makes an approach to dandriff, and has been mistaken for it.

How distinguishable. Description.

The FURFURACEOUS OR BRANNY SCALL makes a still nearer approach to the tribe of lepidosis, and is often mistaken for a pityriasis or lepriasis, particularly where it appears in the scalp, which is its most common seat. It commences, however, if its course be watched, with an eruption of minute pustules, which nevertheless possess a very small quantity of fluid, so that the whole is soon absorbed, and the excoriation or ulceration is but slight. It is apt to be renewed, is attended with a considerable degree of itching, and some soreness of the scalp; the hair partially falls off, becomes thin, less strong in its texture, and somewhat lighter in its colour: none of which symptoms occur in any species of the true scaly eruption. The glands of the neck moreover are occasionally swelled and painful.

ζ E. Porrigo circinata. Ring-worm scall. History.

The RING-WORM SCALL has been known and described under different names, from the Greek writers to our own day. It consists of clusters of very minute pustules forming circular plots of a brown or reddish hue. There is

sometimes only a single plot; and the pustules are so small as to elude all notice unless very closely examined, though a papular roughness is obvious to every one. The exsudation is small, yet if neglected it concretes into thin scabs, sometimes irregularly tipped with green, while the plots expand in diameter, and become confluent. The hair is injured from the first attack; appearing thinner and lighter in colour, and breaking off short; in progress of time the roots are affected and the plots are quite bald, and, as they spread into each other, the baldness extends over the whole head, and nothing remains but a narrow border of hair forming the outline of the scalp. It is chiefly confined to children, and since the multiplication of large boarding-schools and manufactories, in which last they are employed with too little attention to their health, it has been strikingly common in our own country: and from its contagious property has been propagated with great rapidity. It sometimes spreads from the head over the forehead and neck.

GEN. VI. SPEC. II. ζ E. Porrigo circinata. Ring-worm scall.

Chiefly confined to children.

Highly contagious.

Porrigo, therefore, is a disease which appears under different modifications of ulceration, from sores of some depth oozing a thick fetid pus, and covered with a broad, scaly scab, to eruptions so minute as to require the aid of a glass, being covered with fine furfuraceous exfoliations, and discharging a thin purulent ichor, manifested rather by its effects than its presence.

General remarks on porrigo.

The predisposing cause is in every instance irritability of the cutaneous exhalants; and as we find this irritability much greater in infancy than in mature life, the different varieties of porrigo are chiefly confined to this season. The exciting causes are filth, or want of cleanliness, bad nursing, innutritious diet, want of pure air, and whatever else has a tendency to weaken the system generally, and irritate the skin locally. And we may hence see why some of the varieties are found occasionally as sequels on lues, or on those who have debilitated their constitutions by high living, and especially by an immoderate use of spirits.

General predisponent cause. Exciting causes.

It is hence obvious that many, perhaps all these

Medical treatment.

Gen. VI. Sect. II. § Ecpyesis Porrigo. Running scall. In all instances may be occasionally connected with the constitution: and hence alterants. Sedatives, Viola tricolor.

varieties may, in some instances, be connected with the general state of the system; and in such cases the restorative diet-drinks and alterative tonics enumerated under the genus ecphlysis will often be equally advantageous here. Sulphur and the vegetable alkalies have also been found serviceable, but especially small doses of calomel, or the black or red oxyd of mercury. And if there be much general irritation it will be adviseable to unite these with the conium or hyoscyamus. The pansy or heart's ease (viola *tricolor*) was in high vogue for cutaneous eruptions generally, and particularly for those before us, during the sixteenth and seventeenth centuries. It fell, however, into disrepute, but was revived by Dr. Strack, towards the close of the eighteenth century, in consequence of his prize dissertation delivered at Leyden, in 1779, in which he speaks warmly of its success in all the diseases belonging to the present and the ensuing genus*. In employing this herb, Dr. Strack directs that a handful of the fresh, or half a drachm of the dried leaves, be boiled in half a pint of milk to be strained for use, and form a single dose, which is to be repeated morning and evening. He asserts that during the first eight days the eruption usually increases considerably, and that the patient's urine acquires the cat-like smell we have already alluded to: but that, when the medicine has been taken a fortnight, the scab or scurf begins to fall off in large scales, leaving the skin clear. The remedy is to be persisted in till the skin has resumed its natural appearance, and the urine its natural odour. Dr. Strack also recommends, as an internal remedy, which we should little have

Tussilago Farfara.

expected, a decoction of the leaves of the tussilago *Farfara* or coltsfoot, which I should scarcely have noticed were it not that this medicine is equally well spoken of by Professor Frank†, and was also esteemed useful by Dr. Cullen, as we had formerly occasion to observe, in sores

* De Crustâ Lacteâ Infantûm. Francf. 1779.—See also Comment. Lips. Vol. XXVII. p. 170.—Marcard. Beschreibung von Pyrmont. Mezger. Vermichte Scriften. B. II.

† De Cur. Hom. Morb. Epit. Tom. IV. p. 204.

dependent upon a scrophulous habit, many of which he tells us he has seen healed under its employment both in extract and decoction*. As to the viola *tricolor*, Baldinger, who seems also to have tried it, and upon a pretty large scale, asserts that it is of inferior value to sulphur†, and Selle, that if given in small doses it is useless, and if in larger that it does more harm than good‡.

External applications. The species will generally bear stimulants and improve under them, but not always. The most irritable the honey-comb variety, and the furfuraceous.

There is some difficulty in determining upon the external applications. Generally speaking, the skin under all the modifications of this species will bear astringent and even stimulant remedies well, and yield without obstinacy to their use: but in a few instances we meet with the contrary, and aggravate the pustules, and extend their range by the slightest irritants. The most irritable varieties are the honey-comb where it occurs at the extremities of the joints, as about the toes and heel and behind the ears, and the furfuraceous. The last, however, will usually bear a lotion of mild soap and water, and afterwards equal parts of starch and calamine reduced to a very fine powder, and dusted over the patches. The honey-combed scall often requires sedative fomentations and cataplasms at first, but will afterwards allow an application of the zinc ointment, or even that of the nitric oxyde of mercury diluted with an equal part of calamine-cerate. Dr. Willan was attached to the coculus Indicus in cases of this sort, which he prescribed in the proportion of two drachms of the powdered berry to an ounce of lard, but the ointment of galls generally succeeds better. In common, however, we may employ a bolder practice, and use pretty actively alkaline or acid lotions, or solutions of zinc, or warm resinous ointments of tar, pitch, or gum elemi. A dilute solution of nitrate of silver; or equal parts of water and aromatic vinegar will often be found equally beneficial; or the less elegant process of Dr. Frank, which is however formed upon the same prin-

Treatment of both these.

Coculus Indicus.

Frank's process.

* Mat Med. Part. II. Chap. XVIII.

† Neues Magazin fur practische Aerzte, IX. p. 117.

‡ Medicina Clinica. I. 185.

GEN. VI. SPEC. II. Ecpyesis Porrigo. Scabby-scall. Treatment.

ciple. "Patentia nunc ulcera *cum urinâ recenti ac sanâ* quotidie lavantur, ac mox unguento populeo, vel unguento albo, aut rubro, aut demum citrino mercuriali, obtecta, tali methodo simplicissima ad sanationem perducuntur."* All that is wanting is the excitement of a new and healthier action, which the cutaneous vessels for the most part receive with but little trouble; and this, with a punctilious attention to cleanliness, is in most cases sufficient to ensure a cure.

Sulphur and cream.

With the sulphur-ointment, or, which is better, sulphur and cream, I have often succeeded in curing very virulent attacks of the porrigo *favosa* that have covered the whole of the face, and matted the beard into a most disgusting spectacle.

Treatment of porrigo galeata or scalled-head. Banyer's unguent.

In the external treatment of porrigo *galeata*, or scalled-head, one of the most effectual applications is a modification of Banyer's unguentum ad scabiem, for in its original form it is both too irritant and too astringent as well as very unscientifically compounded. I was first induced to try this preparation from the recommendation of my excellent and learned friend Dr. Parr; it has since been recommended by Professor Hamilton, and more lately by Dr. Bateman. Each has altered its composition in a slight degree, and the following form, which is more simple than any of the rest, is that which I have been in the habit of employing with great success for many years. To a powder consisting of two drachms of calomel and an ounce of exsiccated alum and of cerusse, add six drachms of Venice turpentine and an ounce and a half of spermaceti cerate. The hair is first to be cut off as close as may be, for shaving is often impossible; the scalp is then to be slowly and carefully washed with soap and water, and, where there is very little irritation, with soft soap as being more stimulant, in preference to hard; the washing to be repeated night and morning, and the scalp to be well dried afterwards. The ointment is to be applied after the washing every night, and is to

Modified by the author.

* De Cur. Hom. Morb. Epit. Tom. IV. p. 901. Mannh. 8vo. 1792.

be well rubbed all over the head. It may be washed off in the morning; and, when the scalp is made dry, instead of applying it through the day, the head may be thoroughly powdered with nicely levigated starch contained in a fine linen or cambric bag. The scabs and incrustations will hereby become desiccated, and often brittle, for the ointment alone will diminish, and at length utterly suppress the morbid secretion. And in this state they should be gently picked or combed off, one after another, as they grow loose and become detached at the edges.

GEN. VI. SPEC. II. Ecpyesis Porrigo. Scabby scall. Treatment. Crusts to be removed.

In the last variety the ringworm porrigo, or alopecia *porriginosa* of Sauvages, though the appearance is far less disgusting, and unaccompanied with smell of any kind, the bulbs of the hair seem more affected than in any of the preceding. And hence this, which is one of the most common modifications of the disease, and, as we have already observed, has been peculiarly frequent of late years, has been found one of the most obstinate. It has ordinarily made its appearance among children at school, but is not confined either to schools or to childhood; for I had not long since a medical friend under my care, troubled with the same complaint, whose age is about forty.

Treatment of ringworm porrigo: the alopecia porriginosa of Sauvages.

The disease appears to be seated under the cuticle in the mouths of the secernents of the rete mucosum, which secrete a material of a different colour from what is natural and healthy, and hence give a brown or reddish hue to the entire patch. This material affords no nutriment to the bulbs of the hair, and seems sometimes to be acrimonious; whence the hair, like the rete mucosum itself, changes its colour; and, with the change of colour, becomes thinner and weaker, and breaks off short at the base of the cuticle, sometimes at the roots below.

Disease seated under the cuticle.

The acrimony of the secretion occasionally produces a morbid sensibility in the minute vessels of the part affected, so that the patient can hardly bear the patch to be pressed upon or the comb to pass over it; yet this is

Secretion peculiarly acrimonious and excites sensibility in the part.

GEN. VI. SPEC. II. Ecpyesis Porrigo, Scabby scall. Treatment.

not a common effect, for irritants may usually be employed from the first.

This sensibility to be first removed, and afterwards depilatories.

Where this morbid sensibility exists we must endeavour to shorten its stage, for it will at length pass off naturally, by tepid and sedative fomentations, as of poppy-heads, or digitalis: and afterwards have recourse to depilatories, without which we can do nothing, for we cannot otherwise penetrate to a sufficient depth; and hence the more active they are, the more radical will be their effects.

Mercurial preparations: other metallic depilatories.

Different preparations of mercury have for this purpose been chiefly employed, and mostly a solution of sublimate. The other metallic acids have been tartar emetic, sulphate of zinc, sulphate of iron, ærugo or the green oxyde of copper, and even arsenic: while practitioners of a more timid character have confined themselves to the pitch-plaster, balsam of sulphur, or decoctions of tobacco, hemlock, or the viola *tricolor*.

Most of these will answer in slight cases: but in severer cases nitrate of silver.

In slight cases most of these applications will be found sufficient; but, in severe and obstinate cases, none of them. And hence, in every case, I have for many years confined myself to a solution of the nitrate of silver in the proportion of from six to ten grains to an ounce of distilled water, according to the age of the patient, or the irritability of his cuticle; and with this application I have never failed. It destroys the hair to its roots, gives tone to the morbid vessels, and changes their action. It often excites a slight vesication or soreness on the surface, and it is in most instances necessary to push it to this point. And when this stimulant astringent has answered its purpose, the decalvate plots should for some weeks afterwards be daily washed with the acetated solution of ammonia, or aromatic vinegar.

Where porrigo has become chronic, the irritation must be diminished gradually.

Where porrigo is of long standing, and has become chronic, the irritation must be lessened gradually, and a steady use of alterants is absolutely necessary; especially in the varieties accompanied with a considerable discharge, for many writers of authority, as Pelargus*,

* Medicinische Jahrgänge. 1. P. 1. p. 50.

Sennert*, Stoll†, and Morgagni‡, have given examples of epilepsy, apoplexy, and even death itself following upon a sudden retrocession of the eruption. In the Berlin Medical Transactions there is a case or two of amaurosis produced by a metastasis of this disease§. One of the best medicines for the present purpose is the arsenical solution. The cure is generally protracted by a strumous diathesis.

GEN. IV. SPEC. II. Ecpyesis Porrigo. Scabby scall.

SPECIES III.

ECPYESIS ECTHYMA.

Papulous Scall.

PUSTULES LARGE; DISTINCT; DISTANT; SPARINGLY SCATTERED; SEATED ON A HARD, ELEVATED RED BASE; TERMINATING IN THICK, HARD, GREENISH, OR DARK COLOURED SCABS.

ECTHYMA from ἐκθύειν, "to rage, or break forth with fury", was used by the Greek writers synonymously with exormia, in the sense of papula: to which effect Galen "apertum est ab ἐκθύειν, quod est ἐξορμᾶν, id est erumpere, derivatum esse ἐκθύμασι, id est PAPULIS, nomen in iis quæ sponte *extuberant* in cute."‖ I have observed, however, under EXORMIA¶, forming Genus III. of the present Order, that ecthyma has of late years been limited by the nosologists, and especially by Willan, Young, and Bateman, to the species before us, probably on account of its more papulated form, and there seems no reason for deviating from their arrangement.

GEN. VI. SPEC. III. Origin of the specific term: how related to exormia.

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* Paral. ad L. V. Med. Pract. 4. 2.
† Prælect. p. 48.
‡ De Sed. et Caus. Morb. Ep. lv. Art. 3.
§ Dec. I. Vol. VII. p. 7. II. Vol. VI. p. 28.
‖ In Hippocr. Lib. III. Sect. 51.
¶ Suprà, p. 556.

GEN. VI. SPEC. III. Ecpyesis Ecthyma. Papulous scall.

The following are its chief varieties:

α	Vulgare. Common papulous scall.	Base bright red; eruption completed with a single crop. Duration about fourteen days.
β	Infantile. Infantile papulous scall.	Base bright-red; eruption recurrent in several successive crops, each more extensive than the preceding. Found chiefly in weakly infants during the period of lactation. Duration two or three months.
γ	Luridum. Lurid papulous scall.	Base dark-red; elevated; pustules larger, and more freely scattered, discharging a bloody or curdly sanies. — Found chiefly in advanced age. Duration several weeks, sometimes months.

Melasma. General remarks and mode of treatment.

This last is the melasma of Linnéus, Vogel, and Plenck. They are all diseases of debility, local or general; and hence, whether they occur in infancy, adult life, or age, are to be cured by general tonics, pure air, and exercise, tepid bathing, and preparations gently stimulating applied externally in the form of lotions, ointments, or powders.

Uncontagious.

None of them are contagious, and in this as well as in their approaching more nearly to a papulous or broad pimply character, especially that of the small-pox, they differ essentially from the preceding.

Sometimes connected with the constitution and requiring general tonics.

Nutritious food alone, with pure air and regular exercise, are often sufficient for a cure. But as this species is manifestly dependent upon a debilitated or cachectic state of the constitution, it is often connected with those other symptoms which appertain to such a condition, as a tumid belly, diarrhœa, and general emaciation in infants; and

dyspepsy and scirrhous parabysmata, or enlargements of the abdominal viscera, in adults. Dr. Bateman has given a very excellent coloured print of what he calls a cachectic, or fourth variety, in his Delineations, in which the scabby pustules are thickly scattered over the limbs, mimicking very closely in size and number an ordinary appearance of discrete small-pox at the time of its scabbing. It is, however, distinctly a symptomatic affection, or rather a sequel of some long or chronic disease of an exhausting nature, and always disappears in the train of its cure.

GEN. VI. SPEC. III. Ecpyesis Ecthyma. Papulous scall. Cachectic variety of Bateman.

SPECIES IV.

ECPYESIS SCABIES.

Itch.

ERUPTION OF MINUTE PIMPLES, PUSTULAR, VESICULAR, PAPULAR, INTERMIXED OR ALTERNATING; INTOLERABLE ITCHING; TERMINATING IN SCABS. FOUND CHIEFLY BETWEEN THE FINGERS OR IN THE FLEXURES OF THE JOINTS; CONTAGIOUS.

GEN. VI. SPEC. IV.

THIS disease is peculiarly complex; but the specific characters now given embrace the modifications which constitute its chief varieties, and which are as follow:

α Papularis. Rank itch.	Eruption of miliary, aggregate pimples; with a papular, slightly-inflamed base, and vesicular apex; pustules scantily interspersed; tips, when abraded by scratching, covered with a minute, globular brown scab.
β Vesicularis. Watery Itch.	Eruption of larger and more perfect vesicles, filled with a transparent fluid, with an un-

Gen. VI. Spec. IV. Ecpyesis Scabies. Itch.

inflamed base; intermixed with pustules; at times coalescing and forming scabby blotches.

γ Purulenta. Pocky itch. — Eruption of distinct, prominent yellow pustules, with a slightly inflamed base; occasionally coalescing, and forming irregular blotches, with a hard, dry, tenacious scab.

δ Complicata. Complicated itch. — Eruption complicated of pustular, vesicular, and papular pimples co-existing; spreading widely over the body; occasionally invading the face; sometimes confluent and blotchy.

ε Exotica. Mangy itch. — Eruption chiefly of rank, numerous pustules with a hard, inflamed base, rendering the skin rough, and brownish; itching extreme; abrasion unlimited from excessive scratching. Produced by handling mangy animals.

All the varieties sometimes run into each other.

That all these affections are not distinct species of a common genus, but mere varieties of a single species, is manifest from the fact that in different individuals, or under different conditions of the skin, every variety, even the mangy itch itself, will produce every other variety, while all of them in some instances co-exist, and are destroyed by the same means. The above English names for the first three are those in common or vulgar use, and it would be difficult to find names more appropriate. The pocky itch is so denominated from the resemblance of the pustules to minute small-pox, and not from any supposed connexion with syphilis. It gives the largest pimples of all the modifications, as well as the most purulent, but it has never the hard base of either the small-pox or the

The above English names have been long in vulgar use, and sufficiently appropriate. Pocky itch named from the resemblance of its pustules to small-pox,

ecthyma or papulous scall we have just noticed, nor has it the hard raised border or round imbedded scab of the last, and hence is easily distinguished from both. The two former varieties are far more readily confounded with some varieties of prurigo and of lichen, and especially in consequence of the black dots on the tips of the papulæ, and the long red lines common to all as produced by scratching. But they are distinguished by the greater simplicity of the itching sensation, which, however intolerable, is not combined with tingling or formication; and by their being highly contagious which the others are not. Yet from their general resemblance, all these have, by many writers, been confounded, and by others who were fully sensible of their distinction, been incorrectly described under scabies or psora as a common name.

GEN. IV. SPEC. IV. Ecpyesis Scabies. Itch.

and not from any supposed connection with lues.

The first and second varieties approach some varieties of porrigo and lichen.

How distinguishable.

As a *primary* disease, itch is, in every instance, the result of personal uncleanliness, and an accumulation of sordes upon the skin, though the most cleanly are capable of receiving it by contact: and it always appears most readily where close air, meagre diet, and little exercise are companions of personal filth; for here, as we have already had frequent occasions of observing, the skin is more irritable, and more easily acted upon by any morbid cause. Like many other animal secretions the fluid hereby generated is contagious; and, on close intercourse, but not otherwise, and chiefly in the warmth of a common bed, or of a bed that has been slept in before by a person affected with the disease, is capable of communication. Where the cutaneous irritation hereby produced is general to the surface, and has been suffered to remain without check, or with little attention, for a long time, a sudden suppression of the irritation by a speedy cure, like the sudden suppression of a long standing ulcer or issue, is often attended with some severe internal affection; in one instance, indeed, related by Wantner, it was succeeded by mania. And in camps and prisons, where the constitution has been debilitated by confined air, and innutritious diet, the eruption has sometimes been known to assume a malignant character; of which Ballinger gives us an example, the

Itch primarily from personal uncleanliness, though the cleanest may receive it by contact.

Close intercourse necessary for contagion to operate.

When chronic, the irritation it produces to be diminished only by degrees.

Under particular circumstances has assumed a malignant character.

GEN. VI. SPEC. IV. Ecpyesis Scabies. Itch.

whole surface of the body, in the instances to which he refers, having exhibited a sordid tesselation of crusts, excoriations, and broad livid spots, with an indurated base, accompanied with fever at night and severe head-ache.

By what means an organ becomes a nidus for worms or insects.

Whenever an organ is weakened in its action it is extremely apt to become a nidus for worms or insects of some kind or other to burrow in. Hence the numerous varieties of helminthia or invermination in debility of the stomach or other digestive organs; and hence the lodgement, as we have already observed, of the grubs of a minute insect, probably a species of pulex, in one or two of the varieties of prurigo; and hence again in gangrenous ulcers, and especially in warm climates, the appearance almost every morning of innumerable grubs or maggots, of which we have frequent examples in the wounds inflicted on the backs of the negro-slaves in the West Indies by severe flogging. A similar deposit of eggs, apparently of the genus acarus or tick, is sometimes found in itch-pustules, or in the immediate vicinity of them. And hence itch has, by Wichmann, Frank and many other writers of great intelligence, been ascribed solely to this cause *: while others who have sought for the appearance of the grub hereby produced, but in vain, have peremptorily denied the existence of such a fact in any case †. Dr. Frank confides, indeed, so implicitly in the acarus as a cause of itch, as to affirm that where this insect does not exist, the eruption is nothing more than a spurious itch ‡; and, as he further affirms that the disease is sometimes epidemic, he endeavours to account for this fact by supposing that the atmosphere, in particular states of constitution, favours the production of the itch-acarus, as of earth worms and intestinal worms, far more than in other states. The explanation now given constitutes, however, the actual history, and readily reconciles these conflicting opinions.

Hence these sometimes found in or near itch pustules.

Doctrine of Frank.

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* Wichmann, Aetiologie der Krätze. Hanov. 1786.—Rochard, Journ. de Med. Tom. XLI. p. 26.

† Sager, Baldinger, N. Mags. B. XI. p. 484.—Hartmann, Diss. Quæstiones super Wichmanni Ætiologiâ Scabiei. Fr. 1789.

‡ De Cur. Hom. Morb. Epit. Tom. IV. p. 165, 166.

Gen. VI. Spec. IV. Ecpyesis Scabies. Itch.

Such insects are not always to be traced, but they may be seen occasionally: and wherever they appear they are not a cause but a consequence of the disease.

But not necessarily connected with the disease.

There are few complaints that have been treated with so many remedies, and none with so many pretended specifics. Sulphur, zinc, acids of all kinds, bay-berries, white hellebore, arsenic, alum, muriate and other preparations of quicksilver, alkali, tobacco, and tar, have all been used externally in the form of lotions or ointments; and sulphur and sulphuric acid have been given internally, and been strongly recommended both in Germany and in our own country for their success. Sulphuric acid was first used in the Prussian army in 1756, by Dr. Colthenius, chief physician; after which Professor Schroeder of Gottingen, employed it very freely, and asserted that he never failed herewith to cure the itch in fourteen days at farthest*.

Remedial process.

Pretended specifics innumerable.

Sulphuric acid internally.

Epidemic itch,

Dr. Linckius, in the Nova Acta Naturæ Curiosorum, gives an account of an epidemic itch which raged very generally around Nuremberg about the middle of the last century, and resisted all the usual means of sulphur, lead, turpentine, arsenic, mercury, human and animal urine, chalybeate waters, lime-water, and drastic purgatives, and only yielded to diuretics urged to such an extent as to irritate the urethra with a considerable degree of pain. The medicine he employed was a sub-nitrate of pot-ash, obtained by deflagrating common nitre with charcoal. The first hint of this practice he received from a treatise of Mauchart. The urine hereby excreted was very fetid, and threw down a copious sediment†.

cured only by highly irritant diuretics.

All the above remedies may have succeeded at times, as itch is not difficult of cure.

It is very possible that all of these have been successful under peculiar degrees and modifications of the complaint. For the itch is not difficult to cure, and seems only to require an application that will excite a new and more healthy action in the cutaneous vessels. The simplest and most certain cure is to be obtained by the sulphur

Chief principle to be attended to.

The simplest cure by sulphur

* See Dr. Helonich's Dissertatio de Olei Vitriolis usû, &c. Hal. 1762.

† Therapeia Scabie epidemicæ per Diuresin, &c. Tom. IV.

GEN. VI. SPEC. IV. Ecpyesis Scabies. Itch.

ointment, of which that of the London College gives as good and as simple a form as any. On the Continent they usually combine with the sulphur an equal quantity of powdered bay-berries, and of sulphate of zinc, which is mixed up into an ointment with linseed or olive oil. This form was first proposed by Jasser, and under the name of unguentum Jasserianum has maintained an unrivalled character for the last half century *. The offensive smell of the sulphur, whether in the simple ointment or Jasser's compound preparation, is very much diminished by adding to the materials a few drops of the essence of burgamot and as much rose-water as the powders will absorb before they are mixed with the animal or vegetable oil. Perhaps, however, the neatest as well as the most rapid mode of cure by sulphur is that of fumigation as long ago proposed by Professor Frank †, though lately brought forwards again as a new discovery. It has been successfully and commodiously applied by M. Galés of Paris, and since extensively employed over Germany by Dr. de Carro of Vienna and Dr. Karsten of Hanover ‡. The patient, for this purpose, is inclosed naked in a commodious box with a neck-opening for his head to rise above it, and a stool to sit upon. The box is numerously perforated at the bottom, and the sulphureous fumes are communicated to the interior of the box, by means of these perforations; the sulphur being placed on a stone hearth below, and volatilized by a fire underneath it. He must remain in this state for half an hour or an hour; and as he is hereby thrown into a considerable degree of perspiration, it is better for him to be put into a warm bed immediately afterwards till the perspiration has subsided. Other cutaneous complaints have yielded to the same process.

alone or with bay-berries and sulphate of zinc; as in Jasser's ointment.

Sulphur fumigation.

Mode of using it.

These are the safest and most effectual applications,

* Schmuchet, Vermischte-Chirurgische Scriften. Band. III. p. 183. Franck. 1783. 8vo.

† Ubi suprà, Tom IV. p. 174.

‡ Ueber Kraetze, und derer bequemste, schnell-wirkendeste und sicherste Heilart, &c. Hanov. 1818.

and should be employed wherever practicable. But where there is an impracticability the most elegant mode of treatment is to be obtained by a mercurial lotion made by dissolving a drachm of muriated quicksilver in half a pint of water, and adding two drachms of crude sal ammoniac, and half an ounce of nitre. The hands are to be washed with this solution night and morning, and a little of it is to be applied with a clean sponge to the pustules in other parts.

Mercurial lotion when to be preferred.

About eight and forty hours' steady use of this lotion or the sulphur ointment, will generally be found sufficient to effect a cure; after which the person should be well cleansed and rinsed with warm water. And it will tend much to expedite and ensure the cure if the body be in like manner exposed to a warm-bath before the curative process is entered upon, as much of the contagious matter and impacted sordes will hereby be removed, and the ointment or lotion will have a chance of taking a greater effect. Where the constitution has been influenced, aperient and alterative medicines will also be necessary, and ought not to be neglected.

Mode of application of the lotion or ointment.

In India a pleasant and easy cure is said to be effected by wearing linen that has been dipped in juice expressed from the agreeable fruit of the bilimbi tree (averrhoa *Bilimbi*. Linn.), which has also the reputation of being an antidote in many other cutaneous disorders: but I cannot speak of its effects from any personal knowledge.

Juice of the Bilimbi-tree.

How far scabies may, under any circumstances, cease naturally I cannot say: we are informed, however, by Bennet, that a case which had resisted all remedies was cured by a phthisical expectoration which continued for a month*.

Has ceased under another morbid action.

* Young, On Consumptive Diseases, p. 171.

GENUS VII.

MALIS.

Cutaneous Vermination.

THE CUTICLE OR SKIN INFESTED WITH ANIMALCULES.

Gen. VII. Maliasmus. Phthiriasis.

Malis and Maliasmus (*μάλις, μαλιασμὸς*) are Greek nouns importing cutaneous vermination. In the present system the genus is designed to include both the malis and phthiriasis of Sauvages and several other writers, which are very unnecessarily divided. Common as this disease is to man, it is still more so to animals of perhaps every other class and description, from the monkey to the fish-tribes, and from these to the lowest worms. All of them are infested with parasitic and minute living creatures on their skins, shells, or scales, which afford them an asylum, and for the most part supply them with nutriment. Yet the same affection is still more common to plants; which are not only infested with parasitic plants but with parasitic animals as well. The volume of Nosology contains many curious examples of this kind which the reader may turn to at his leisure.

Extensive range of parasitic animals on other animals,

and plants:

formerly called dodders, a term lately restrained to the cuscusa genus of plants.

These external parasites, whether animal or vegetable, by our old botanical writers, were significantly called *dodders*, from a term which has lately, but improperly been restrained to a particular tribe or genus of plants to which Linnéus has given the name of *cuscusa*, a parasite found very extensively on the nettles and the wild thyme of our own wastes: but which formerly was applied to external parasitic plants of all kinds; and hence Dryden in his Fables speaks of doddered *oaks*, and in his Eneid of doddered *laurels*:

> Near the hearth a laurel grew
> *Dodder'd* with age, whose boughs encompass round
> The household gods, and shade the holy ground.

Dodders are, therefore, parasites generally, and as strictly apply to those which constitute the present genus as to any that infest the vegetable world.

GEN. VII. Malis. Cutaneous vermination.

Generally speaking, vermination is a proof of weakness, whether in animals or in plants; and hence the weaker the plant or the animal the more subject are they to be attacked, and the more readily to be infested.

Vermination generally a proof of weakness in plants or animals.

A few instances may possibly be adduced of plants and animals in perfect health being thus haunted, but they do not oppose the general rule. The remote cause of this disease, however, is most commonly filth; for filth debilitates the cutaneous vessels in every instance by obstructing the pores of the exhalants and confining the perspirable matter till it becomes acrimonious.

Sometimes under particular circumstances found in healthy plants and animals.

The animalcules that infest mankind are the following: which will constitute so many species:

1.	MALIS PEDICULI.	LOUSINESS.
2.	—— PULICIS.	FLEA-BITE.
3.	—— ACARI.	TICK-BITE.
4.	—— FILARIÆ.	GUINEA-WORM.
5.	—— ŒSTRI.	GADFLY-BITE.
6.	—— GORDII.	HAIR-WORM.

SPECIES I.

MALIS PEDICULI.

Lousiness.

CUTICLE INFESTED WITH LICE, DEPOSITING THEIR NITS OR EGGS AT THE ROOTS OF THE HAIR: TROUBLESOME ITCHING.

GEN. VII. SPEC. I.

THE insects of this name that trouble our own race are the two following:

a Pediculi humani. Common louse. Infestment of the *common louse*, chiefly inhabiting the head of uncleanly

Gen. VII. Spec. I. Malis pediculi. Lousiness.

children, renders it produces a greasy scurf or other filth; and sometimes exulcerations and purrigo: occasionally migrates over the body.

β Pediculi pubis. Crab-louse.

Infestment of the *crab-louse*, found chiefly on the groins and eyebrows of uncleanly men: itching extreme, without ulceration.

α M. pediculi humani. Common louse. Description and history from Leewenhoeck.

The COMMON PEDICULUS, is too well known to render any particular description necessary. Leewenhoeck, who cautiously watched them, by way of experiment, on his own person, affirms that the male is furnished at the extremity of the abdomen with a sting, and that it is this sting which produces the usual irritation, the suction of the proboscis hardly seeming to occasion any irksome sensation on the skin of the hand. The male is readily distinguished from the female by having the tail or tip of the abdomen rounded, which in the female is forked or bifid. The animal is produced from a small oval egg, vulgarly called a nit, which is agglutinated by its smaller end to the hair on which it is deposited. From this egg proceeds the insect complete in all its parts, and differing only from the parent animal in its size. To determine the time of pregnancy and proportion of increase this indefatigable physiologist took two females and placed them in a black silk stocking which he wore day and night that they might have the full benefit of feeding upon him. He found that in six days each laid fifty eggs without exhausting its store, and that in twenty-four days the young were capable of laying eggs themselves: and, carrying on the calculation, he estimates that the two females conjointly might produce eighteen thousand in two months.

Prodigious fecundity.

The largest animals of this kind were discovered by Linnéus in the warm caverns of Fahlum in Sweden. It

has been observed, however, by many entomologists that those which conceal themselves in clothes, forming the pediculus *vestimentorum*, are, in some respects, a different animal from the lice of the hair, or p. *capitis*. Dr. Willan remarks that the latter lay single nits on the hairs of the head, and do not spontaneously quit the scalp or its natural covering. The former are large, flat, and whitish, and seldom appear on the head, but reside on the trunk of the body, on the limbs, and on the clothes. Their nits are conglomerate and usually deposited in the folds of linen or in other articles of dress.

Gen. VII. Spec. I. α M. pediculi humani. Common louse. Pediculus vestimentorum perhaps a different form or species.

Swediaur tells us that he once saw a young woman, thirty years of age, a patient in the Westminster Infirmary, who was covered very generally with minute pustules and tubercles produced by an unlimited assault of these animalcules over the whole body; and supposes that universal phthiriasis was by no means an unfrequent disease among the antients*.

Singular exemplification from Swediaur.

The PEDICULUS PUBIS is distinguished by the cheliform structure of its legs, whence its name of crab-louse: its antennas consist of five articulations. Its excrement stains the linen and appears like diluted blood. It is a frequent cause of local prurigo: for these animals burrow in the skin, and, being almost unknown among decent persons, may remain a long time unsuspected, since even an examination for the purpose will scarcely detect them. They are chiefly discoverable by their nits which may be seen attached to the basis of the hairs, the insects themselves appearing only like discolourations of the skin.

β M. pediculus pubis. Crab-louse.

A frequent cause of local prurigo.

All these are bred among the inhabitants of sordid dwellings, jails, and workhouses, or who are habitually uncleanly. Monkeys, the Hottentots, and some tribes of negroes are said to eat them. The cutaneous secretion is sometimes so changed by disease that it becomes offensive to them, and they quit the person who is la-

* Nov. Nosol. Meth. Syst. II. 239.

GEN. VII. SPEC. I. β M. pediculus pubis. Crab-louse.

boaring under it; various infectious fevers seem to produce this result.

The common louse said to have been useful in epilepsies and scrophula:

It is affirmed by some writers that the pediculus *capitis* or *humanus*, has been found useful in epilepsies, diseases of the head, and in scrophula, and that the worst consequences have arisen from drying the little ulcerations they produce. In Russia and other parts of the Continent, where this kind of uncleanliness is, perhaps, less attended to than in our own country, all this may have occurred; for we have already had occasion to observe that any cutaneous irritation, whether from scabies, porrigo, or any other excitement, maintained till it has become habitual, should be suppressed gradually, or we shall endanger a transfer of the morbid action to a part of far more importance. Upon the whole, however, such remarks are only apologies for filth and indolence, as we are in no want of much more effectual cutaneous irritants, where such means are called for, than can be obtained from so disgusting a source.

but commonly such remarks are only apologies for filth.

Remedial process.

The most fatal poisons to all these vermin are the mercurial oxydes, staphisacre, menispermum, rue, opium, angelica, and laurel; saffron, pepper, sedum, lycopodium, pinguicula, tobacco, and the seeds of veratrum. Cleanliness itself, however, is a sufficient antidote, and a sure prophylactic. The pediculus *pubis* is best destroyed by calomel mixed with starch powder, and applied by a down puff.

SPECIES II.

MALIS PULICIS.

Flea-Bite.

CUTICLE INFESTED WITH FLEAS; OFTEN PENETRATING THE CUTIS WITH THEIR BRISTLY PROBOSCIS, AND EXCITING PUNGENT PAIN; EGGS DEPOSITED ON OR UNDER THE CUTICLE.

THIS species offers us the two following varieties: GEN. VII. SPEC. II.

α Pediculi irritantis. Common flea.	Infestment of the *common flea*, with a proboscis shorter than the body; eggs deposited on the roots of the hair, and on flannel.
β Pediculi penetrantis. Chiggre.	Infestment of the *chigoe* or *chiggre*, a West Indian flea, with a proboscis as long as the body; often penetrating deeply into the skin, and lodging its eggs under the cuticle, particularly of the feet; producing malignant, occasionally fatal, ulcers.

α M. pulicis irritantis. Common flea. Extensive range. Natural history.

The COMMON FLEA infests not mankind only, but quadrupeds and birds of all kinds. It is probable that it has many varieties, but these have not been ascertained by entomologists. Contrary to the economy of the pediculus, the flea undergoes all the changes of the metamorphosing tribes of insects, being produced from an egg, which gives rise to a minute vermicle or larve, that is transformed into a chrysalis, and finishes in a winged ani-

GEN. VII. SPEC. II. α M. pulicis irritantis. Common flea.

mal. The eggs, in the summer months, take six days before they are hatched, the larve the same period before it becomes a chrysalis, the chrysalis twelve days before it assumes its perfect form: so that the entire process is completed in a little more than three weeks in the summer, though a longer period of time is consumed in the colder months. It obtains its nourishment from the juices of the animal it infests, by driving its sharp proboscis under the cuticle.

β M. pulicis penetrantis. Chigoe or chiggre. Its description and bite.

The CHIGOE or chiggre is thus excellently described by Catesby. "It is a very small flea found only in warm climates. It is a very troublesome insect, especially to negroes and others that go barefoot and are slovenly. They penetrate the skin, under which they lay a bunch or bag of eggs, which swell to the bigness of a small pea or tare, and give severe pain till taken out: to perform which great care is required for fear of breaking the bag, which endangers mortification and the loss of a leg, and sometimes life itself. This insect, in its natural size, is not above a fourth part so big as the common flea. The egg is so small as to be scarcely discerned by the naked eye."

As these animalcules are fostered like the pediculus by filth and laziness, they are best destroyed by vigilance and cleanliness: and in the mean time most of the poisons recommended in the former case will prove effectual in the latter. The cuticular or cutaneous halos, often accompanied with a slight elevation, of the skin, crowned with minute vesicles, or dandriff, produced by the present and various other bites or stings of insects, as that of the gadfly, harvest-bug or wasp, are called by Frank * and many other writers psydrasia or psydrasiæ. Dr. Willan's definition of the term does not widely differ from this explanation.

Psydrasia of Frank and Willan.

* De Cur. Hom. Morb. Epit. Tom. iv. p. 181. Mannh. 8vo. 1792.

SPECIES III.

MALIS ACARI.

Tick-Bite.

CUTICLE INFESTED WITH THE TICK; ITCHING HARASSING, OFTEN WITH SMARTING PAIN.

THE tick insect offers us the following varieties: GEN. VII. SPEC. III.

α Acari domestici. Domestic tick.	"Observed on the head in considerable numbers." This is not a common variety, but Dr. Young has an example, and I have introduced the variety upon his authority and in his words.
β Acari Scabiei. Itch-tick.	Infestment of the *itch-tick*; burrowing under the cuticle in or near the pustules or vesicles of the scabs in those affected.
γ Acari autumnalis. Harvest-bug.	Infestment of the *harvest-bug*, less in size than the common mite; inflicting its bite in the autumn, and firmly adhering to the skin; itching intolerable, succeeded by glossy wheals.

The acarus is a very numerous genus of very minute insects, including, besides those enumerated above, a multitude of other species well known to every one, as General description of acarus.

GEN. VII. SPEC. III. Malis acari. Tick-bite.

a. *Ricinus* or dog-tick, a. *Siro* or mite, a. *dysenteriæ* or dysentery-tick, of which we have spoken already*.

Dog-tick. Dysentery-tick.

The first in the above varieties is probably the a. *Leucurus* of Linnéus, with a testaceous exterior, found frequently in the neighbourhood of gangrenous sores, and dead bodies. The second a. *scabiei*, or *exulcerans*, for though enumerated as two by Linnéus, they are the same animal, white with reddish legs. It burrows, not in, but near the exulcerations of the itch, as already observed under scabies, as also in the neighbourhood of other exulcerations, and adds considerably to their irritation. The harvest-bug is a globular ovate-red insect, with an abdomen bristly behind. From the glossy wheals which its bite produces it has sometimes been called WHEAL-WORM.

α M. Acarus domesticus. Domestic tick. A. Leucurus of Linnéus. β M. Acarus scabiei. Itch-tick. γ M. Acarus autumnalis. Harvest-bug, or wheal-worm.

Remedial process.

The wounds inflicted by vermin of this kind are to be avoided by avoiding their haunts; or a tepid bath when we have been exposed to them. Where the punctures have taken place they are easiest relieved by a lotion composed of equal parts of the aromatic spirit of ammonia and water, which I have often found also highly serviceable in the bite of an animal that does not, indeed, harbour in the cuticle or on the skin, though he is as troublesome by his sudden and predacious sallies, I mean the gnat and the musqueto fly.

* Vol. II. p. 545.

SPECIES IV.

MALIS FILARIÆ.

Guinea-Worm.

SKIN INFESTED WITH THE GUINEA-WORM; WINDING AND BURROWING UNDER THE CUTICLE, FOR THE MOST PART, OF THE NAKED FEET OF WEST INDIAN SLAVES; SEVERE ITCHING, OFTEN SUCCEEDED BY INFLAMMATION AND FEVER.

Gen. VII. Spec. IV.

THIS worm is found chiefly in both the Indies, most frequently in the morning dew; often twelve feet long, not thicker than a horse-hair. It may be felt under the skin, and traced by the fingers, like the string of a violin: and excites no uneasy sensation, till the skin is perforated by the animal. It should be drawn out with great caution, by means of a piece of silk tied round its head; for if, by being too much strained, the animal break, the part remaining under the skin will grow with redoubled vigour, and often occasion a fatal inflammation.

The irk Medini or vermis Medinensis of the Arabians.

This animal is the *irk Medini* (يرقا مدني) of Avicenna, and the Arabians, literally, *vermis Medinensis*, but which has, by some means or other, been by most writers corruptly translated *nervus, or vena Medinensis*.

Well known to the Greeks, and their dracontia.

The Guinea worm was well known to the Greek writers, who, according to Pliny, denominated it *δρακοντία* (dracontia), whence the name of dracunculus which is frequently applied to it. Aëtius and Agatharcides have both given an account of this worm, as has also Paulus of Ægina.

Diagnosis.

The inflammation produced by this animal commences with an itching in the part affected, without acute pain. The part swells and inflames, and at length resembles a furunculus or boil, in hardness, and when on the point

Gen. VII. Spec. IV. Malis filariæ. Guinea-worm.

of breaking, in vehement pain. Soon after the tumour has burst, the head of the worm may be seen peeping from the bottom of the sore, when it is to be cautiously laid hold of as already described. Sir James M'Gregor informs us that the native practitioners are far more expert in extracting it than Europeans: and that after an exact feel with their fingers for the body of the worm they make an incision, as nearly as they can judge, through its middle, and by nicely tyeing a piece of silk to each end, curl out both at the same time. Mr. Hutcheson gives an account of his having extracted one that measured three yards and a half in length*. It more usually, however, measures from eighteen inches to six feet. It is elastic, white, transparent; and contains a gelatinous substance.

How to be extracted.

Dexterity of native practitioners.

Great length at times.

SPECIES V.

MALIS ŒSTRI.

Gad-fly Bite.

SKIN INFESTED WITH THE LARVES OF THE GAD-FLY; CHIEFLY BURROWING IN THE SCHNEIDERIAN MEMBRANE OF THE NOSTRILS.

Gen. VII. Spec. V.

THIS complaint is more common to quadrupeds than to mankind; especially to sheep, horses, and black cattle; the insect depositing its eggs in different parts of the bodies of these animals, and hence producing painful tumours, occasionally succeeded by death, from the violence of the inflammation. We sometimes, however, and in the West Indies not unfrequently, find the eggs of this insect deposited in the interior membrane of the human nostrils; accidentally inhaled with the air, or lodged by a sudden ascent of the insect itself. Mr. Kilgour of Jamaica, gives a striking example of this, though

More common to quadrupeds than to mankind;

but sometimes found in man.

Exemplified.

* Edin. Med. Essays, Vol. v. Part II. p. 309.

he does not exactly indicate the insect. The patient was reduced almost to a state of madness before the appearance of a single larve ascertained the real nature of the disease. The cure was effected by an injection of tobacco decoction. Two hundred were discharged in ten days *.

Gen. VII. Spec. V. Malis œstri. Gad-fly bite.

SPECIES VI.

MALIS GORDII.

Hair-Worm.

SKIN INFESTED WITH THE HAIR-WORM; CHIEFLY INSINUATING ITSELF UNDER THE CUTICLE OF THE BACK, OR LIMBS OF INFANTS; PRODUCING PRICKING PAINS, EMACIATION, AT TIMES CONVULSIONS.

Gen. VII. Spec. VI. Morbus pilaris. Morbus à crinone.

THIS is the morbus pilaris of Horst, the malis à crinonibus of Etmuller and Sauvages.

Nature of the disease involved in some obscurity.

The nature of the disease is still involved in some uncertainty, the fibrils thrown forth from the surface of the skin accompanied with the symptoms above described, are by some authors supposed to be a morbid production of real hairs; but the greater number, and among the rest Ambrose Paré, ascribe to them a distinct living principle.

Probable cause the gordius or hair-worm.

The disease is uncommon: but upon the whole it seems to be often produced by a species of the gordius or hair-worm; some of which are well known to infest other animals in like manner; and especially the cyprinus *alburnus* or bleak, which, at the time, appears to be in great agony.

According to Hoffman common to children in Misnia.

Hoffman tells us that the children of Misnia are much infested with worms of this kind, which he describes as resembling black hairs lodged under the skin: and which, by a perpetual irritation, so emaciate them that they be-

* History of a case in which Worms in the Nose were removed, &c. 8vo. 1782.

GEN. VII. SPEC. VI. Malis gordii. Hair-worm.

come little more than living skeletons. When the skin is warm they appear, but while cold they keep buried under its cover.

to the town of Seyne in 1776, and called cées.

A similar disease is said by M. Bassignet to have been peculiar, in 1776, to the town of Seyne and its neighbourhood, and to have made its attack upon almost all the new-born children. In Seyne it was at that time called cées, a corruption of ceddés, a provincial term for a bristle. It appeared from the first twelve hours till the end of the first month after birth, rarely later than the last period. The symptoms were a violent itching, and general erethism so as to prevent sleep, hoarseness, a diminution of the voice, and an inability of sucking. Friction with the hand over the body proved a certain cure, and brought forth a kind of dark rough filaments resembling hair, often not more than the twelfth of an inch in length, in some cases furnished with a minute bulb at the extremity *.

Curative process employed at Seyne.

General medical treatment.

Civadilla.

Its destructive pungency.

A decoction of the cocculus Indicus is serviceable in this and in most of the preceding species: but perhaps the most determinate cure for the whole is to be found in the civadilla, supposed to be a species of the veratrum, which I have already recommended in many cases. No insect or vermin of any kind is capable of resisting or living under the pungent and acrid aroma of its seeds when reduced to powder, which it is only necessary to sprinkle over the linen or bed-clothes that are thus infested. The powder, indeed, is a powerful errhine; and when tasted affects the tongue with the pungency of needles and excites a severe and protracted ptyalism. On account of this acrid and penetrating power it ought not to be used where the surface of the body is exulcerated. In porrigo, or scabby scall, it has even proved fatal: and hence it is omitted in Rosenstein's third edition of his work "On the Diseases of Children", though recommended in the two preceding.

Requires great caution in its use.

* Hist. de la Societé Royale, &c. Ann. 1776.

GENUS VIII.

ECPHYMA.

Cutaneous Excrescence.

SUPERFICIAL, PERMANENT, INDOLENT EXTUBERANCE; MOSTLY CIRCUMSCRIBED.

Gen. VIII. Origin of generic term.

ECPHYMA is a Greek term from *ἐκφύω* "educo, egero," in contradistinction both to *phyma* "an inflammatory tumour", and *emphyma* "a tumour without inflammation", originating below the integuments. Extuberances similar to those belonging to this genus are frequently found in the rinds of fruits, as apples and oranges, and form a peculiar character in some species of melon; none of which are produced by insects, nor are we acquainted with the immediate cause.

The species of this genus are the four following:

1. ECPHYMA CARUNCULA. CARUNCLE.
2. ——— VERRUCA. WART.
3. ——— CLAVUS. CORN.
4. ——— CALLUS. CALLUS.

SPECIES I.

ECPHYMA CARUNCULA.

Caruncle.

SOFT, FLESHY, OFTEN PENDULOUS, EXCRESCENCE OF THE COMMON INTEGUMENT.

Gen. VIII. Spec. I. When found principally.

THIS species is found over the surface generally and occasionally, as a sequel of lues, about the arms and sexual organs.

Gen. VIII. Spec. I. Ecphyma Caruncula. Caruncle. Ficus. Encanthis.

From its shape or position it often obtains a particular name, as *ficus*, when fig or raisin-shaped; *encanthis*, when seated on the canthus or angle of the eye.

At first mere cuticular tumours, but by degrees connected with the cutis, or subjacent muscles.

These excrescences on their first formation seem to be productions of the cuticle alone; but by gradually thickening and a fresh vascularity they come at length to be connected with the skin itself, and, in some instances, even to proceed to the depth of the subjacent muscles.

Differ in consistency, colour, shape, and size.

They are of very different degrees of hardness: being in some instances not much firmer than the parts with which they are connected: whilst in others they are found to acquire the obduracy of a rigid scirrhus. Their colour also is very various: in some cases they are of a pale white, and in others of different shades of red. In some instances they are single, and in others gregarious. In many cases they are not larger than ordinary warts, but in others they are much broader and thicker.

Remedial process.

Where they are neither painful nor unsightly there can be no reason for attacking them, but in other cases they should be removed. Those of a soft consistency may be often destroyed by rubbing them frequently with a piece of crude sal ammoniac, or washing them with a strong solution of that salt. Savin powder is a still more effectual escharotic. Pressure alone will also sometimes succeed when it can be fairly applied. But if none of these answer, recourse must be had to lunar caustic or the scalpel.

Treatment.

SPECIES II.

ECPHYMA VERRUCA.

Wart.

FIRM, HARD, ARID, INSENSIBLE EXTUBERANCE OF THE COMMON INTEGUMENT: FOUND CHIEFLY ON THE HANDS.

Gen. VIII. Spec. II.

WARTS are small sarcomata that offer the following varieties:

α Simplex. Simple Wart.	Simple and distinct: sessile or pensile.
β Lobosa. Lobed Wart.	Full of lobes and fissures.
γ Confluens. Confluent Wart.	In coalescing clusters.

Origin and progress.

All these rise, like the caruncle, from the cuticle at first, and gradually become connected with the cutis by being supplied with minute arteries that rarely extend far into its substance, as the surface, when of any bulk, is hard, ragged, and insensible. The extreme sensibility of the base of a wart renders its connexion with a subcutaneous nerve highly probable.

Curative process.

It is destroyed by ligature, the knife, escharotics, or powerful astringents. Many of our common pungent plants are employed by the vulgar for the same purpose, and in various instances answer sufficiently. One of the most frequent is the celendine or chelidonium *majus*, whose yellow acrid juice is applied to the excrescence daily or occasionally till it disappears. The pyroligneous acid, however obtained, answers the same purpose, as does the meloë *proscarabæus*, the liquor potassæ or ammoniæ, mineral acids, muriated ammonia. In Sweden they are destroyed by the gryllus *verrucivorus*, or wart-

Chelidonium majus or celendine-juice.

Pyroligneous acid. Savine.

Destroyed by the gryllus verrucivorus.

Gen. VIII. Spec. II. Ecphyma Verruca. Wart. Treatment. Sometimes disappear spontaneously.

eating grasshopper, with green wings spotted with brown. The common people catch it for this purpose; and it is said to operate by biting off the excrescence, and discharging a corrosive liquor on the wound. They often disappear spontaneously, and hence lay a foundation for being charmed away.

SPECIES III.

ECPHYMA CLAVUS.

Corns.

ROUNDISH, HORNY, CUTANEOUS EXTUBERANCE WITH A CENTRAL NUCLEUS, SENSIBLE AT ITS BASE: FOUND CHIEFLY ON THE TOES FROM THE PRESSURE OF TIGHT SHOES.

Gen. VIII. Spec. III. Originate as caruncles and warts, and sometimes approach ichthyiasis cornea. Sometimes cast annually.

Corns originate in the same manner as caruncles and warts. They are sometimes spontaneous, and gregarious, spreading over the whole head and body: and sometimes rise to a considerable height, and assume a horny appearance. In the last case the tuber makes a near approach to some of the species of the genus LEPIDOSIS, especially L. *Ichthyiasis* cornea, and cornigera. In the ninth volume of the Transactions of Natural Curiosities, is a case of an annual fall by a spontaneous suppuration.

Mode of treatment.

The cure consists in cutting or paring the excrescence down nearly to its roots; and then applying some warm resinous, or other stimulating preparation, as the juice of squills, house-leek, or purslane, or the compound Galbanum or ammoniac emplaster.

SPECIES IV.

ECPHYMA CALLUS.

Callus.

CALLOUS EXTUBERANT THICKENING OF THE CUTICLE; INSENSIBLE TO THE TOUCH.

GEN. VIII. SPEC. IV.

Where chiefly seated, and how produced.

By burning sands or other excess of heat.

THIS species is found chiefly on the palms of the hands and soles of the feet as a consequence of hard labour. Among those who accustom themselves to long journeys over the burning sands of Egypt, some have had their feet as indurated with a thick callus as an ox's hoof, so as to bear shoeing with iron; and in Siam such persons have been known to walk with their naked feet on red-hot iron bars.

Singular effects.

By mineral acids, used for this purpose by fire-walkers and fire-eaters.

This species is produced also by a frequent exposure of the hands or feet to hot water, or to mineral acids. The cuticle of the feet has been rendered so thick and insensible by the use of sulphuric acid as to endure fire without pain. This acid is hence commonly employed by professed fire-walkers, and fire-eaters, the interior of the mouth being hardened and seared in the same way as the soles of the feet.

Singular illustration.

In the Medical Museum is a singular case of this complaint as it occurred in a young man, the cuticle of whose hands was so thickened and indurated as to render them of no use. He was by trade a dyer; and the disease was gradually brought on by cleaning brass wire, with a fluid consisting of sulphuric acid, tartar, and alum. His fingers were so rigid from the callosity of the cuticle, that on a forcible endeavour to straighten them, blood started from every pore. As the disease was chiefly ascribed to the use of the acid, the patient was ordered to apply to

GEN. VIII. SPEC. IV. Ecphyma Callus. Callus.

his hands an emollient liniment consisting of equal parts of olive-oil and aqua-kali. After two days, one half the alkali was omitted, and the yolk of two eggs added. By means of this application, the hardened cuticle began to peel off; and a new flexible one to appear beneath; he acquired the use of his fingers by degrees, and in about two months the cure was perfected.

GENUS IX.

TRICHOSIS.

Morbid Hair.

MORBID ORGANIZATION OR DEFICIENCY OF HAIR.

Gen. IX. Origin of generic name. Pilare malum. Trichiasis.

Trichosis (τρίχωσις) "pilare malum", is a term of Actuarius, and other Greek writers from θρὶξ "pilus". Trichiasis is the more common appellation; but it has often been used in a somewhat different and more limited sense. The terms athrix and distrix, which express two of the species under this genius, are evidently from the same root.

Physiology of hair: rise like vegetable spiracles from bulbous roots in the cuticle.

Hair may be regarded as a vegetation from the surface of the body; it rises from a bulbous root of an oval form which fixes in the cuticle or rete mucosum, and seems sometimes to shoot into the cutis. The separate hairs are spiral and hollow, filled with a pulp, furnished with vessels, and knotted at certain distances like some sorts of grass, and in some cases send out branches at their knots. Their roots or bulbs are found over the whole surface of the body, though they only vegetate in particular parts, for which it is not easy to assign a reason. The hairs in the stems of the roots are nourished by the gluten at its base, and as this is more copious or more fluid the stem is more succulent: when in a smaller quantity or more dense, the hair is dry, crisp, and soon falls off: when not carried to the extremities, the stems or hairs become brittle, or split. The rete mucosum furnishes the hair with its colour: and as this colour, together with the nutritive mucus of the hair, diminishes, and is at length altogether suppressed in old age, we see one reason why the hair becomes gray, and perishes.

Bulbs or roots found over the entire surface but only productive in particular parts except extraordinarily.

Why hair becomes gray, and perishes.

GEN. IX. Trichosis.

Morbid hair. Without nerves. Circulation how maintained. Beneficial effects of combing the hair, and refreshment often obtained by it. Long hair whether productive of debility.

As hairs, at least in a state of health, have no more nerves than the filaments of vegetables, it is probable that the circulation is carried on in them in the same manner as in plants. By combing we free the fluid from those obstructions which must necessarily be produced by their being bent in all directions: and hereby promote a circulation through the bulb, and relieve the head from accumulations: for though the vessels of the bulb are small they are numerous*. And we are hence enabled to account for the relief and refreshment which is often felt by a patient after the operation of combing. Long hair has been in all ages esteemed an ornament. There is no question, however, that it requires more nutriment for its support than short hair; and some physiologists have gone so far as to doubt whether it may not hereby be injurious to the general health, as productive of debility. But there seems no real ground for such a belief, as a healthy system, like the roots or trunk of a healthy tree, will always be able without inconvenience to furnish sustenance enough for its branchy foliage. Dr. Parr, however, affirms that suddenly cutting off long hair has to his knowledge been injurious and attended with every appearance of plethora: while very thick hair may occasionally weaken by the undue warmth and perspiration it occasions.

Suddenly cutting off long hair has been injurious, and induced plethora.

Indestructibility.

Next to the bones, hair appears to be the most indestructible of the constituents of the body: and there are accounts of its having been found in old tombs after all the soft parts had entirely disappeared.

Difference in various qualities.

The hair of different individuals differs considerably in its thickness, in the proportion of $\frac{1}{300}$ to $\frac{1}{700}$ of an inch in diameter: and it is no less variable in its other physical qualities, some kinds being much more dense and elastic than others, which Mr. Hatchett ascribes to the different proportion of jelly contained in it†.

According to the experiments of Vauquelin, read to

* Parr, Med. Dict. Art. Pilus.

† Elementary System of Physiology, p. 91. 8vo. 1804.

the Institute in 1806, human hair is not soluble in boiling water, but, when exposed to a greater temperature in Pappin's digester, it dissolves readily. From a solution of black hair, a black matter was deposited, which proved to be an oil of the consistence of bitumen, together with iron and sulphur. And as the hair of some persons has a smell approaching to that of sulphur, and especially those who have red hair, we are no longer at a loss to account for this. The same excellent chemist found that alcohol extracts from black hair a whitish, and a grayish-green oil, the last of which separates as the alkohol evaporates. It is probable, therefore, that the black matter is gummy or albuminous; the white we are told resembles cetaceum in appearance though it differs in chemical affinity. Red hair affords the white matter, and instead of the grayish-green oil, an oil as red as blood. White hair contains phosphate of magnesia, affording us another proof of the greater facility with which calcareous matter is either formed or let loose in old age than in any other period of life*; and its oil is nearly colourless. When hair becomes suddenly white from terror, Vauquelin thinks it may be owing to a sudden extrication of some acid, as the oxymuriatic acid is found to whiten black hair; but it is suggested by Parr that this may more probably be owing to an absorption of the oil of the hair by its sulphur, as in the operation of whitening woollen cloths. Dr. Bostock has more plausibly conceived that the effect depends upon the sudden stagnation of the vessels which secrete the colouring matter, while the absorbents continue to act, and remove that which already exists†.

GEN. IX. Trichosis. Morbid hair. Chemical properties of hair. Black oil obtained from black hair; iron, and sulphur: as also a whitish and grayish green oil: blood red oil obtained from red hair.

White hair from phosphate of magnesia whence its colour chiefly: though a white sometimes produced by other means.

Sudden change to white accounted for.

These remarks will assist us in comprehending something of the nature of the following species of diseases which are included in the genus before us:

1.	TRICHOSIS SETOSA.	BRISTLY HAIR.
2.	——— PLICA.	MATTED HAIR.
3.	——— HIRSUTIES.	EXTRANEOUS HAIR.

* Suprà, p. 324. † Elementary System of Physiology, p. 92.

Gen. IX. Trichosis. Morbid hair.

4.	TRICHOSIS DISTRIX.	FORKY HAIR.
5.	——— POLIOSIS.	GRAY HAIR.
6.	——— ATHRIX.	BALDNESS.
7.	——— ABEA.	ABRATED HAIR.
8.	——— DECOLOR.	DISCOLOURED HAIR.
9.	——— SENSITIVA.	SENSITIVE HAIR.

SPECIES I.

TRICHOSIS SETOSA.

Bristly Hair.

HAIRS OF THE BODY THICK, RIGID, AND BRISTLY.

Gen. IX. Spec. I. Hystricis or Porcupine hair of Plenck. Illustrated.

THIS is the hystricis or porcupine hair of Plenck. It is in fact a stiff corpulency of hair produced by a gross or exuberant nutriment, and has been sometimes limited to the head, sometimes to other organs, and sometimes common to the body. The remarks already offered will sufficiently account for its production.

In the fifth volume of the Philosophical Transactions, we have an extraordinary example of hair of this kind being thrown off and renewed every autumn, like the horns of the deer, and various other quadrupeds. The affection was also hereditary, for five sons exhibited the same morbid state of the hair*.

* See also Samml. Med. Wahrnehmung. Band. vi. p. 262.

SPECIES II.

TRICHOSIS PLICA.

Matted Hair.

HAIRS VASCULARLY THICKENED; INEXTRICABLY HARLED AND MATTED BY THE SECRETION OF A GLUTINOUS FLUID FROM THEIR ROOTS.

GEN. IX. SPEC. II. Affords a proof of vascularity in hair: as also that the hairy tubes or spires are dilatable; whence an occasional ascent of red blood.

THIS disease affords a sufficient proof by itself, if other proofs were wanting, of the vascularity of the hairs. Vauquelin ascribes it to a superfluous excretion of the fluid that nourishes them, but there must be something more than this: there must be also an intumescence or dilatation of the vascular tunic of the hairs, since their capacity is always augmented, and in some cases so much so as to permit the ascent of red blood; in consequence of which they bleed when divided by the scissors.

Common cause, uncleanliness. Whether contagious.

Most authors ascribe it to uncleanliness, which is no doubt the ordinary exciting cause, though there seem to be others of equal efficiency. It is also very generally affirmed to be contagious, and I had hence added this character to the disease in the volume of Nosology. But,

Denied by Kerckhoffs.

as Dr. Kerckhoffs strenuously maintains the contrary after a very minute attention to the complaint in Poland itself, and more especially after having in vain endeavoured to inoculate first himself, and then two children, from the matter issuing from the bulbs of hair pulled for this purpose from a boy who was suffering from it in the most loathsome manner, I have here withdrawn the symptom.

His explanation of the disease.

Dr. Kerckhoffs reduces plica to a much simpler principle than it has hitherto been described under, and strips it of many of the most formidable features by which it has been characterized; particularly its connection with hectic fever or any idiopathic affection of the brain *. He re-

* Observations Médicales, Par Jos. Rom. Louis Kerckhoffs. Médicine de l'Armée, &c. See Med. Trans. Vol. VI. Art. III.

Gen. IX. Spec. II. Trichosis Plica. Matted hair.

gards it as a mere result of the custom common among the lowest classes of the Polonese, of letting the hair grow to an immense length, of never combing, or in any other way cleaning it, and of constantly covering the head with a thick woollen bonnet or leathern cap. And hence, says he, while the rich are in general exempt from the disease, it is commonly to be met with among the poor alone, who wallow in filth and misery, and particularly among the Jews, who are proverbially negligent of their persons. He contends, in consequence, that it is no more endemic to Poland than to any other country; and that nothing more is necessary to effect a cure than general cleanliness, and excision of the matted hair.

Uncleanliness with him the only cause.

Illustrated.

The first person he saw labouring under this disease, and he gives the case as a general specimen, was a boy from fifteen to eighteen years old, in a miserably poor village in the neighbourhood of Posen: most offensively filthy, lying in a dark hole, and stinking *(puant)* beside the beasts. He had black hair, very long, very coarse, and braided into thick plaits of a twelvemonth's standing. His head was covered with grease, his brain was greatly affected, and he was complaining of terrible head-aches. The medical practitioner that attended him opposed a removal of the hair from a vulgar belief that the common outlet of morbid humours being thus cut off, such humours would flow rapidly to the brain and produce apoplexy or some other cerebral affection. At length he consented that after a brisk purge the process of cutting the hair should commence, but only to be proceeded in by degrees. The length of two fingers was therefore first removed; and this producing no mischief, it was again shortened to the same extent two days afterwards: and in this manner the whole was cut off in about twenty days. After this the patient was allowed to comb his head a little, and wash it with milk; a few bitters and other tonics were prescribed for him, and he was very shortly restored to perfect health.

Difficulties attending the

Admitting Dr. Kerckhoffs' explanation of this disease to be correct, it is somewhat singular that the same expla-

GEN. IX. SPEC. II. Trichosis Plica. Matted hair.

nation has never hitherto been given by the most intelligent and most celebrated Polish, or even German physicians; as it is also that the disease should be unknown in other countries where the hair is, in like manner, suffered to grow without cutting, and where as little attention is paid to cleanliness.

admission of Kerckhoffs' hypothesis.

Hence Sinapius *, and numerous other writers deny uncleanliness to be the only, or even the ordinary cause. They contend for a predisposition in the habit, and affirm that under such predisposition any local accident, and a variety of affections in remote organs, may become exciting causes. In the Ephemera of Natural Curiosities is a case in which it seems to have been produced by a wound in the head †. Vehr relates another in which it followed, together with jaundice, upon a suppression of catamenia for three months ‡. It is also occasionally a sequel of several of the varieties of psoriasis. Swediaur relates a case in which the removal of the hair was accompanied with severe pain, though the scissors were applied at a considerable distance from the head; but he seems to have credited report upon this subject too readily; for he tells us of another case in which the patient, then residing in one of the hospitals at Paris, suffered acute head-ache on the abscission of her matted hair, and died not long after §. In one instance it appears to have followed upon gout in the head, and to have kept pace periodically with its paroxysms. The patient was about fifty years of age, and whenever attacked with this podagral affection, his hair began to curl, and become harled; insomuch that often in a single night, instead of hanging down straight, it formed a complicated wreathy mass, which no combing could reduce to order. As soon, however, as the paroxysm of gout subsided, the hair lost its tendency to twist, and was easily disentangled ‖.

Other causes than uncleanliness assigned by many writers.

Constitutional predisposition.

Has followed upon a wound in the head; upon jaundice, and suppressed catamenia: upon psoriasis.

Swediaur's credulity.

Sometimes followed upon gout.

Singular example.

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* Paradoxa Med. † Dec. II. Ann. II. Obs. 1.

‡ Diss. Icterus fuscus cum Plicâ Polonica, &c. Fr. 1708.

§ Nov. Nos. Meth. Syst. II. 231. ‖ Journ. of For. Med. No. XVII.

GEN. IX. SPEC. II. Trichosis Plica. Matted hair. Hair to be cut off, and its removal unattended with mischief.

Cutting off the hair, however, though generally supposed to exasperate the disease, or to lead to some secondary evil, does not appear to produce these effects; and hence Vicat recommends the use of the scissors whenever the hairs bleed *. It is far better with Dr. Kerckhoffs to use them beforehand.

Disease has appeared in other parts than the scalp.

Though the disease has been usually confined to the hair of the scalp, it has occasionally appeared in other quarters, as in the beard, the cuticle, and even the pudendum: authorities for which are quoted in the volume of Nosology.

Accompanied at times with various affections of the head, and why.

From the great afflux of fluids, and even of blood to the head, during this disease, it is often accompanied with hemicrania, or some other cephalalgic affection.

SPECIES III.

TRICHOSIS HIRSUTIES.

Extraneous Hair.

GROWTH OF HAIR IN EXTRANEOUS PARTS, OR SUPERFLUOUS GROWTH IN PARTS COMMON.

GEN. IX. SPEC. III. Appears chiefly in bearded women; generally, perhaps, produced by deficient menstruation: but not always.

THE most frequent example of this misaffection is that of bearded women. In a few instances the female beard has even been bristly, thus uniting the present with a preceding species. Hippocrates ascribed hirsuties under this form to a deficient menstruation †, whence it is occasionally met with in young women. This cause is admitted generally in modern practice; but one of the most striking cases in a young woman, that has ever occurred to the present author, was accompanied with an

* Mémoire sur la Plique Polonoise Lausanne, 1775.

† Epidem. Lib. VI. Sect. 7.—Schurig, Parthenologia, p. 195. Dresd. 1729. 4to.

habitual paramenia *superflua*, under which the patient at length sunk at about forty years of age.

GEN. IX. SPEC. III. Trichosis Hirsuties.

In like manner a beard has sometimes been found on boys *, and in a few instances on infants †.

Extraneous hair. Beard found in boys, and infants.

Hair has often also sprouted forth from organs whence it does not grow naturally; which, however, in most instances, can be accounted for without any great difficulty by bearing in mind a remark offered in the opening of the present genus; I mean that "the roots or bulbs of hairs are found over the entire surface of the body, though they only vegetate in particular parts". Yet Amatus Lusitanus has given us an example to which this explanation will not apply, for in this the exotic hairs grew on the tongue ‡, as the feathers of the toucan grow naturally. Criniti and Bose found the heart covered in the same manner §.

Hair produced in extraneous organs. Cause of this explained. Found on the tongue, on the heart.

Of organized animal substances hair, however, seems to be originated more easily than any other: and this, too, without having, at least in many cases, any apparent bulb or root to shoot from. We had lately occasion when treating of PARURIA STILLATITIA, to notice their discharge from the bladder as constituting one of the causes of this complaint. So in MALIS GORDII ‖ they have been apparently solicited by friction, from different parts of the body of an infant with seeming relief to his distress. And under the genus ECCYESIS ¶, numerous examples have been given of their formation in various internal organs. It is on this account the hair and beard are said by writers of grave authority occasionally to grow for some time after the death of every other part of the body; of which examples may be found in Heister **, and Camerarius ††.

Hair originated more easily than any other organized animal substance. Exemplified.

Whether continues to grow after death.

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* Paullini, Cent. III. Obs. 64.

† Eph. Nat. Cur. Dec. II. Ann. IV. Obs. 163. Ap. 209.

‡ Cent. VI. Cur. 65.

§ Pr. Hist. de Anitomenis Messenii hirsuto corde, Paris, 1696.—Pr. Sistens historiam cordis villosi, Leips. 1771.

‖ Suprà, p. 665. ¶ Suprà, p. 246, et passim.

** Heist. Compend. Anat. †† Camerar. Memorab. Cent. VI. p. 47

SPECIES IV.

TRICHOSIS DISTRIX.

Forky Hair.

HAIRS OF THE SCALP WEAK, SLENDER, AND SPLITTING AT THEIR EXTREMITIES.

Gen. IX. Spec. IV. Explained. Remedial process.

THIS is a common affection, and depends upon a deficiency in the supply of proper nutriment from the bulb or root of the hair, in consequence of which the upper part of the tube becomes arid and brittle, and splits into minute filaments, as already explained in the introductory remarks to the present genus. Its cure is to be accomplished by cutting the hair short, and stimulating the roots by irritant pomatums, unguents, or oils.

SPECIES V.

TRICHOSIS POLIOSIS.

Gray Hair.

HAIRS PREMATURELY GRAY OR HOARY.

Gen. IX. Spec. V. Origin of specific term. Physiological explanation.

THE SPECIFIC term POLIOSIS is a Greek derivative from πολὸς, "candidus", "canus",—"white or hoary".

The general principle of this diseased appearance has been explained in the introductory remarks to the present genus. The colour of the hair is derived from the rete mucosum, which secretes a very compound material for this purpose, a part of the occasional ingredients of which are iron, sulphur, lime, a grayish-green, and a blood-red, oil. In the silvery white or glossy hair of young persons, the nutritive matter is, perhaps, the rete mucosum in its purest and most uncoloured state. Gray hair is produced in two ways. In one there is no colouring mate-

rial whatever, except apparently a small portion of the sulphur: and in this case the hair is directly hoary, or of a yellowish or rusty white. In other circumstances the rete mucosum or nutriment of the hair, from causes already explained under the genus PAROSTIA, is loaded with calcareous matter, but deficient in its proper oil; and hence the hair is somewhat whiter, but of a dead hue, harsher, and coarser, very brittle, and apt to fall off from the roots. Gen. IX. Spec. V. Trichosis Poliosis. Gray-hair.

White hair, probably produced by the former of these means, has been found occasionally in every stage of life; and Shenck gives a case in which it appeared on birth *. It has sometimes been transmitted hereditarily †: and, in some instances, seems to have taken place from terror ‡, the spasm of the capillaries of the skin extending to the bulbs of the hair, which no longer communicated a supply of the ordinary pigment. It has for the same reason followed upon an obstinate cephalæa §, and is said to have occurred after death ‖.

SPECIES VI.

TRICHOSIS ATHRIX.

Baldness.

DECAY AND FALL OF THE HAIR.

THE general principle of this defect has been so fully detailed under the preceding species, and in the introductory remarks to the present genus, that it is not necessary to add any thing further. Gen. IX. Spec. VI.

This affection of the hair is the alopecia of Sauvages and other modern nosologists, but not that of Celsus and Alopecia of many authors but not of Celsus and Galen.

* Lib. I. Obs. 3. ex Stuckio. † Eph. Nat. Cur. Dec. II. Ann. I. Obs. 69.

‡ Camerar. Memor. Cent. II. N. 14.—Doute, Ergo Canities à timore? Paris, 657.—J. P. Frank, De Cur. Hom. Morb. Tom. V. p. 128.

§ Journ. des Sçavans, 1684.

‖ Eph. Nat. Cur. Dec. II. Ann. I. Obs. 69.

GEN. IX. SPEC. VI. Trichosis athrix. Baldness. Origin of specific term. Daus-saleb of the Arabians.

Galen, which is a variety of the next species. Alopecia is a Greek term derived from ἀλωπὴξ "vulpes", *a fur*, this animal being supposed to lose its hair and become bald sooner than any other quadruped. The Arabian writers named it from the same source (دآءُ الثعلبِ) *daus-saleb*, literally "morbus vulpis". The species admits of the following varieties:

α	Simplex. Bald-head.	Hairs of the scalp of a natural hue; gradually dying at the bulbs, or loosened by a relaxation of the cutaneous texture.
β	Calvities. Bald-crown.	Hairs gray or hoary: baldness chiefly on the crown of the head; and confined to the head. Mostly common to advanced age.
γ	Barbæ. Bald-beard.	Decay and fall of the beard.

α T. athrix simplex. Bald-head.

The FIRST VARIETY is the defluvium capillorum of Sennert. Whatever tends to give an established relaxation and want of tone to the cutaneous vessels becomes a cause of this affection: and it is hence a frequent sequel upon fevers of various kinds. It is also found as a symptom in tabes, phthisis, porrigo, and impetigo.

General tonics and cold bathing form the most promising treatment where it is an idiopathic affection: and where it is a secondary complaint it must follow the fortune of the disorder that gives rise to it.

β T. athrix calvities. Bald-crown.

The SECOND VARIETY proceeds from a cause precisely opposite to the preceding. Here the cutaneous secernents, instead of being too loose and relaxed are too dry and rigid: there is little nutriment afforded to the roots or bulbs of the hair, whence they become arid and brittle, particularly at the extreme point of the head or crown, and are perpetually breaking off at their origin. The cause of the whiteness or hoariness of the hair has been explained under the preceding species. Other causes

Gen. IX. Spec. VI. β T. athrix calvities. Bald-crown. More common to males than females: said never to occur in eunuchs: or before the use of sexual copulation.

than that of old age are noticed by pathologists, and have no doubt a foundation; as terror, which has sometimes operated very rapidly, insolation or exposure of the head to the rays of the sun, unlimited sexual indulgence*, cephalæa, and worms†.

This affection is far more common to males than to females; it is asserted by many writers that it never occurs in eunuchs‡, and by Schenck that it never takes place in any persons before the use of sexual copulation; and hence ought not to exist in bachelors; and, provided the remark be well founded, on which I cannot speak from my own knowledge, might be employed as a test of their continence.

The most promising remedies are to be sought for in an external application of warm animal oils, and oily aromatic essences, as lavender-water.

Baldness of the beard is not a common defect: but examples of it are referred to in the volume of Nosology. And a few rare instances are to be met with of the baldness extending over every part of the body. Professor Frank has given us a striking example of this in a young man who about two months before he saw him had suffered a sudden falling off of the hair from the beard, head, eye-lashes, and pubes, while his fingers appeared dead as though destroyed by a dry gangrene, his voice, meanwhile was unchanged, the full power of procreation continued, and with the exception of a slight debility which he had felt for a few days, he was free from complaint. There was no perceptible cause, though thirteen years before he had laboured under syphilis§.

Sometimes extends over the body. Singular instance.

* Gilbert. Adversus Pract. Prin.—Merlet. Diss. Ergo à Salacitate Calvities? Paris, 1668.

† Paullini Lues Set. Dec. IV. Obs. 9.

‡ De Moor, Diss. in Hipp. App. VI. 28. L. B. 1736.—Schenck. L. 3. Obs. 10.

§ De Cur. Hom. Morb. Epit. Tom. IV. p. 124.

SPECIES VII.

TRICHOSIS AREA.

Areated Hair.

PATCHES OF BALDNESS WITHOUT DECAY OR CHANGE OF COLOUR IN THE SURROUNDING HAIR; EXPOSED PLOTS OF THE SCALP GLABROUS, WHITE AND SHINING; SOMETIMES SPREADING AND COALESCING, RENDERING THE BALDNESS EXTENSIVE.

Gen. IX. Spec. VII. Species derived from Celsus.

THIS species is taken entirely from Celsus, who gives two varieties of it almost in the following words:

α Diffluens. Diffluent areated hair.	Bald plots of an indeterminate figure; existing in the beard as well as in the scalp: obstinate of cure. Common to all ages.
β Serpens. Serpentine areated hair.	Baldness commencing at the occiput, and winding in a line not exceeding two fingers' breadth, to each ear, sometimes to the forehead: often terminating spontaneously. Chiefly limited to children.

First variety the alopecia of the Greeks. Second variety their ophiasis.

The FIRST VARIETY forms the true alopecia of the Greeks, of which I have spoken already, and is so denominated by Celsus, Galen, and other Greek and Roman writers. The second is called by them ophiasis from ὄφις, "a serpent", in consequence of the serpentine direction in which the disease trails round the head.

The species is the porrigo decalvans of Bateman;

Dr. Bateman has described this species under the name of porrigo *decalvans*, while he admits that the surface of the scalp offers no porriginous or other eruption

whatever, but "within these areæ is smooth, shining, and remarkably white. It is probable, however," he adds, "*though not ascertained*, that there may be an eruption of minute achores about the roots of the hair, in the first instance, which are not permanent, and do not discharge any fluid." It must be obvious to every one that this fall of the hair has no connexion whatever with porrigo; depending upon a partial operation of the causes that we have already noticed as giving rise to the two preceding species of poliosis and athrix.

Gen. IX. Spec. VII. Trichosis Area. Areated hair. but has no real connexion with porrigo.

A frequent shaving of the entire scalp, with affusion of cold water, and the use of stimulant liniments, as aromatic vinegar, or a solution of two drachms of the oil of mace in three or four ounces of alcohol, will sometimes be found to produce a fresh crop of hair: though, in most instances, all applications are equally unavailable; and even in successful cases it is usually many weeks or even months, and has been years, before the patches are duly supplied with hair.

Remedial process.

SPECIES VIII.

TRICHOSIS DECOLOR.

Miscoloured Hair.

HAIR OF THE HEAD OF A PRETERNATUAL HUE.

As the hair receives its tint from the pigment communicated to the bulbs by the rete mucosum, whatever varies the character or colour of this material, will vary also the colour of the hair. Some of the causes of such variation we shall have to notice under the ensuing genus; but there are others which are not so easily explained. From the rete mucosum, we have already seen that the hair obtains iron and sulphur, as also the blood-red oil which is procured by digestion from the red hair, which forms a third constituent, since it does not seem from the

Gen. IX. Spec. VIII. General explanation: but the causes not always manifest.

Gen. IX. Spec. VIII. Trichosis decolor. Miscoloured hair.

experiments of Vauquelin, that this is a result of the iron. The grayish-green oil which this excellent chemist has been also able to extract from black and other dark kinds of hair is another distinct principle: and, from an excess or deficiency, or a peculiar combination of the colorific constituents, we are able to account for some of the extraordinary hues which the hair is occasionally found to exhibit, though others seem to elude all explanation. The chief varieties they display are the following:

α Cœrulea.	Of a blue colour *.
β Denigrata.	Changed from another colour to a black †.
γ Viridis.	Of a green colour. Of which we have had very numerous examples ‡.
δ Variegata.	Spotted, like the hair of a leopard §. Of this the examples are more common than of any of the preceding varieties.

Change of colour sometimes sudden: particularly when to a black.

Many of these singular hues are said to have followed upon some natural colour of the hair: and, in some instances, suddenly. This is particularly the case with the second variety; or that in which the hair has abruptly become black, which seems to have occurred as a result of fever, of exsiccation, and of terror. Schurig gives a case in which the beard, as well as the hair, was transformed from a white to a black ‖.

Fever, exsiccation and terror, causes.

In what way these causes operate.

We have observed, under the fifth species, that one of the causes of white or rather hoary hair, is a dry shrivelled or obstructed state of its bulbs by which the colorific matter is no longer communicated. And it is possible, that as both terror and fevers, and many other violent commotions, have sometimes proved a cure for palsy, they may occasionally produce a like sudden effect

* Paullini Cent. I. Obs. 93. † Id. Cent. III. Obs. 59.
‡ Bartholin. Hist. Anat.—Paullin. Cent. I. Obs. 96.
§ Eph. Nat. Cur. Dec. III. Ann. Obs. 184.
‖ Schurig. Spermatos.

upon the minute vessels of the bulbs of the hair, remove their obstruction, or arm them with new power, and thus re-enable them to throw up into the tubes of the colourless hair the proper pigment.

GEN. IX. SPEC. VIII. Trichosis decolor. Miscoloured hair.

SPECIES IX.

TRICHOSIS SENSITIVA.

Sensitive Hair.

HAIR OF THE HEAD PAINFULLY SENSITIVE.

GEN. IX. SPEC. IX. This species new.

THIS species is added in consequence of a singular case that has occurred since the publication of the first edition, and on the special recommendation of the learned and indefatigable editor of the Edinburgh Medical and Surgical Journal, to whom the author is also indebted for suggesting the specific name. It shows us that under a morbid condition of the scalp, not only blood-vessels but nerves will sometimes shoot forth into the tubes of the hair, and convey a very high and acute degree of sensibility.

By whom introduced.

Pathology.

Illustration.

In the hospital of the Royal Guard at Paris, was a private soldier who had received a violent kick on the occiput from a horse. The cerebral excitement produced was extreme, and could only be kept under by almost innumerable bleedings both local and general. Amongst a series of phænomena produced by this state of preternatural excitation, the sensibility acquired by the hairs of the head was not the least remarkable. The slightest touch was felt instantly, and cutting them gave exquisite pain, so that the patient would seldom allow any one to come near his head. Baron Larrey on one occasion, to put him to the test, gave a hint to an assistant who was standing behind the patient, to clip one of his hairs without his perceiving it. This was done with dexterity, but the soldier broke out into a sally of oaths, succeeded by complaints: and it was some time before he could be appeased*.

* Ed. Med. Journ. July 1822, p. 481.—From Journ. of For. Med. No. XVII.

GENUS X.

EPICHRÓSIS.

Macular Skin.

SIMPLE DISCOLOURATION OF THE SURFACE.

Gen. X. Origin of the generic term.

EPICHROSIS (ἐπίχρωσις) is a term common to the Greek writers, and employed to express a coloured or spotted surface of any kind.—The genus is new, but it seems called for. Like the last it consists of blemishes, many of which cannot always either be cured or even palliated; but, as all these are morbid affections, the nosological system that suffers them to pass without notice is imperfect. Many of them, however, are not of serious consequence, and have been arranged by Professor Frank under EPHILIS, employed as a genus, and with a latitude beyond its ordinary use*.

Ephilis of Frank.

The following are the species that belong to it:

1. EPICHROSIS LEUCASMUS. VEAL-SKIN.
2. ——— SPILUS. MOLE.
3. ——— LENTICULA. FRECKLES.
4. ——— EPHELIS. SUN-BURN.
5. ——— AURIGO. ORANGE-SKIN.
6. ——— PŒCILIA. PYE-BALLED SKIN.
7. ——— ALPHOSIS. ALBINO-SKIN.

* De Cur. Hom. Morb. Tom. IV. p. 77. Mannh. 8vo. 1792.

SPECIES I.

EPICHROSIS LEUCASMUS.

Veal-Skin.

WHITE, GLABROUS, SHINING, PERMANENT SPOTS, PRECEDED BY WHITE TRANSITORY ELEVATIONS OR TUBERCLES OF THE SAME SIZE; OFTEN COALESCING AND CREEPING IN A SERPENTINE DIRECTION; THE SUPERINCUMBENT HAIRS FALLING OFF AND NEVER RESPROUTING.

GEN. X. SPEC. I.

The vitiligo or veal-skin of Willan.

THIS is the vitiligo, or veal-skin of Willan, so called from the veal-like appearance which these spots produce on the general colour of the surface. It is common to the different parts of the body, but chiefly found about the face, neck, and ears. The term leucasmus (λευκασμὸς), importing whiteness, is merely employed instead of vitiligo to avoid confusion as Dr. Willan has used vitiligo in a sense somewhat different from that of Celsus, or of any one who preceded him, though Professor Frank has made an approach to it by giving it the meaning of Celsus, importing a variety of leprosy, and afterwards confounding it with numerous other affections of the skin that have no possible connexion with it, of which the present forms one instance*.

Leucasmus why preferred as a specific term.

General character and description.

The size of these spots vary considerably, from that of a large pin's head to that of a shilling or half-a-crown. The blank and morbid whiteness remains through life, and seems to show that the patches are no longer possessed of red blood-vessels, and that the white hue of the rete mucosum alone is visible in their respective areas, exhibiting a pure white, only differing from that of death in being glossy from the action of a living principle.

* De Cur. Hom. Morb. Epit. Tom. IV. p. 119.

SPECIES II.

EPICHROSIS SPILUS.

Mole.

BROWN, PERMANENT, CIRCULAR PATCH; SOLITARY; SOMETIMES SLIGHTLY ELEVATED, AND CRESTED WITH A TUFT OF HAIR.

GEN. X. SPEC. II.

THE specific term, from σπιλὸς "macula", has been long in use. The blemish is common but unimportant.

Origin of specific term.

Produced by a partial change in the rete mucosum.

We have had much of late to observe concerning the rete mucosum, and in the ensuing species shall have again to refer to this material. We have already remarked that it is a substance which forms the second or middle of three laminæ that constitute the external integument. It is improperly called either *rete* or *mucosum*, for it is neither a net-work, nor a mucous material, being in effect nothing more than an adipose secretion of a peculiar kind, which, when black, has a considerable resemblance to the grease that is interposed between the axles and wheels of our carriages.

This substance examined physiologically.

Improperly called rete mucosum.

Detected by Malpighi:

Its existence was first noticed by Malpighi who gave it the name of rete as thinking that through the structure of soft and uniform matter he could trace certain fibres, crossing each other in various directions, but which have not been ascertained since, not even in the skin of the negro in whom this layer is most conspicuous. In many animals,

denied by Bichat:

indeed, there is no rete mucosum whatever, and Bichat has expressed his doubts whether it has a distinct existence in any species, and conceives Malpighi was mistaken.

but confirmed by Cruickshank and others.

But Cruickshank appears to have confirmed satisfactorily the assertion of Malpighi in the human form, and even to have traced it in some of the internal parts of the body, as well as in the skin*: and Dr. Gordon†, after a scruti-

* On Insens. Persp. passim. † Anat. p. 244.

nous examination has added his testimony to the same fact*.

Gen. X. Spec. II. Epichrosis Spilus. Mole.

It is in truth the common pigment or colouring principle of the skin, and hence differs very considerably in hue, as is sufficiently obvious in the respective individuals of the same country, but still more so in those of remote regions; giving a white or fair hue to the inhabitants of the south side of the Caucasus and their probable descendants the great body of Europeans, a black to the negroes of Africa, an olive hue to the Mongo-Tartar race, a brown to the islanders of Australasia, and a red to the native tribes of North America.

The common colouring principle of the skin: differing in different individuals, and especially in different regions, and giving a white or fair hue, a black, an olive, a brown, and a red.

In temperate climates, and in its purest state, it is a clear glossy white, and when reddened under a delicate cuticle, by the minute and innumerable arteries that are distributed over the surface of the body, it gives that rich but dainty tone of colour which constitutes beauty of complexion.

Clear glossy white in temperate climates.

It sometimes happens, however, that persons who are perfectly fair in their general complexion, from an equal diffusion of this substance in its utmost purity, have a few small spots of a lighter or deeper brown in the face, limbs, or body, from an occasional dash of brown in the rete mucosum, produced by causes which it is impossible to unravel: and which, as we shall show presently, in other persons extends over the entire surface, and is consequently intermixed with the whole of the secretion: and it is this occasional dash that constitutes a spilus or mole. In treating of TRICHOSIS we observed that chemical analysis has proved that the hair, and consequently the rete mucosum which supplies it with pigment, is possessed of a certain portion of iron: and it is possible that a concentration of this mineral substance in the coloured part may constitute the colorific material. Be this as it may, we perceive, wherever these coloured spots exist, there is a greater tendency to increased action than elsewhere; and hence, we often find a slight elevation, and additional

Origin of moles in fair complexions.

Accompanied at times with a slight elevation,

* Bostock, Elem. Syst. of Physiol. p. 79.—See also Edin. Med. Journ. vol. XVIII. p. 247.

Gen. X. Spec. II. Epichrosis Spilus. Mole.

closeness of structure, and not unfrequently an enlargement of the natural down into a tuft of hairs.

and tuft of hair accounted for.

If this reasoning be correct, alkaline lotions (and all soaps are of this character, though not sufficiently strong for the present purpose,) should form the best cosmetics.

Mode of treatment.

But the spots are rarely removeable by any means, and the less they are tampered with the better.

Moles in what respect different from nævi or mother-marks.

These differ essentially from nævi or genuine mother-marks, inasmuch as the latter are produced by a distention of the minute blood-vessels of the skin, so that those which should contain only colourless blood, admit the red particles, and hereby exhibit stains of different shapes and ranges, and of different shades of crimson or purple, according to the quantity of red blood that is hereby suffered to enter, or the nature of the vessels that are distended.

SPECIES III.

EPICHROSIS LENTICULA.

Freckles.

CUTICLE STIGMATISED WITH YELLOWISH-BROWN DOTS, RESEMBLING MINUTE LENTIL SEEDS; GREGARIOUS; OFTEN TRANSITORY.

Gen. X. Spec. III. Lentigo, Phacia of the Greeks.

Lenticula is more generally written in modern times *lentigo*; it is here given as it occurs in Celsus. The root is the Latin term *lens* a lentil-seed. The Greek word for which is φάκια; and this, without a diminutive termination, was also applied to the same blemish, when the spots were of a larger size.

Causes various—mostly insolation.

Its causes are various; most commonly it is produced by an exposure to the rays of the sun: but it frequently arises without any such exposure, and is sometimes transmitted hereditarily.

In what manner remote causes operate.

The mode by which the colorific rays of the sun operate in the production of this effect we shall explain

under EPHELIS or sun-burn, forming the next species. Where the remote cause is constitutional it is probably a result of the same colorific material as that to which we have just referred spilus or mole, existing in the rete mucosum, and operating more diffusely, though in much smaller patches. How it comes to pass that this middle layer of the exterior integument should at any time be thus interruptedly charged with a coloured pigment so as to form the freckled appearance which constitutes the present cuticular blemish, it is not easy to say, but that it has a remarkable tendency to do so is obvious, not only from the present and preceding species, but still more so from the very striking and singular patch-work which constitutes EPICHROSIS POECILIA or the sixth species of the genus before us: where we shall be again under the necessity of touching upon the subject.

GEN. X. SPEC. III. Epichrosis Lenticula. Freckles.

Freckles most frequently are found on persons of fair complexions and red hair; and, as we have already observed that this hue of the hair is produced by a peculiar pigment derived from the rete mucosum, which gives rise to a blood-red oil that ascends into the hair-tubes, we have an additional reason for ascribing the brown or reddish-brown freckles of the skin to a superabundance of the same pigment in the same adipose layer.

Mostly found in fair complexion and red hair; explained.

Freckles are often transitory. They occur in many instances in great abundance in pregnant women, and disappear after lying-in, sometimes, indeed, in the latter months of pregnancy. Riedlin affirms, but upon what authority I know not, that they are a foresign of a female offspring *.

Often transitory.

It is well observed by Frank that the more tender leaves of plants and the cuticle of fruits have a tendency to the same affection, and particularly after a descent of very gentle rains which the burning ray of the sun does not suddenly disperse; in which case we often meet with as many dots as there have been drops of rain †. Similar

Occasionally found in plants.

* Lin. Med. 1695. p. 393.

† De Cur. Hom. Morb. Epit. Tom. IV. p. 79. Mannh. 8vo. 1792.

Gen. X. Spec. III. Epichrosis Lenticula. Freckles. Remedial process.

marks are likewise sometimes produced by the defedation of insects.

Cosmetics are of less avail in this than in the ensuing species, but those we shall have there occasion to notice may be tried under the species before us.

SPECIES IV.

EPICHROSIS EPHELIS.

Sun-burn.

CUTICLE TAWNY BY EXPOSURE TO THE SUN: OFTEN SPOTTED WITH DARK FRECKLES, CONFLUENT OR CORYMBOSE; DISAPPEARING IN THE WINTER.

Gen. X. Spec. IV. Origin of specific term.

Ephelis (ἔφηλις) is a term of Celsus, as well as the name appropriated to the preceding species: and its real meaning is "sun-burn" or "sun-spot"—"vitium faciei solis ustione". In Celsus however, the term is used in a much wider sense, and applied to blemishes which have no connexion with sun-burning. It is here restrained to its proper signification.

Physiological explanation. Solar rays affect the skin in a two-fold manner: Directly by its colorific rays.

The sun in hot climates, or very hot summer-seasons, has a tendency to affect the colour of the skin in a two-fold manner. First by a direct affinity of its calorific rays, or those of light, with the oxygene of the animal surface, and particularly with that of the rete mucosum, in consequence of which a considerable part of the oxygene is detached and flies off, and the carbone and hydrogene with which it was united, being freed from its constraint, enter into a new combination, and form a more or less perfect charcoal, according to the proportion in which they combine. And, secondly, by the indirect influence which the calorific rays of the sun or those of heat produce

And indirectly by its calorific.

GEN. X. SPEC. IV. Epichrosis Ephelis. Sun-burn.

upon the liver, and excite it to a more abundant secretion of bile, possessing a deeper hue, and which is more copiously resorbed into the system. That a certain proportion of bile is resorbed at all times, is clear from the colour of the urine and the stain which the perspirable fluid gives to clean linen: and that this proportion is greater in hot summers than in cold winters, and particularly in intertropical climates, is well known to every one who has attended to the subject.

Effusive brown thus produced: deeper tinged freckles that often accompany it how produced.

These then are the ordinary causes of that effusive brown stain of the skin which we denominate sun-burn. But whether the deeper spots or freckles which so often accompany a sun-burnt skin be owing to an equal action of either of these causes, and particularly of the first, upon the rete mucosum, or to an extrication of any colouring matter, as of iron, for example, existing in the rete mucosum itself, and unequally distributed, is beyond our power to determine. Either cause is sufficient to produce such an effect, though perhaps the real cause is the latter: and we have already seen that in the distribution of this adipose layer over the surface, and its connexion with the cuticle and the cutis, there is a frequent obstruction to a free flow of whatever colouring material may exist in it, which is in consequence accumulated in spots or patches, instead of being equably diffused.

Principles on which cosmetics should be founded as remedies of sun-burn. Vegetable and mineral acids. Homberg's cosmetic. Hartmann's cosmetic. Its mode of action.

As sun-burn is chiefly occasioned by an inordinate separation of oxygene from the other constituent principles of the rete mucosum with which it was united, the most rational cosmetics in this case are those which have a tendency to bleach the skin, by containing a considerable proportion of some vegetable or mineral acid. Homberg's cosmetic, which has long been in vogue on the Continent, is a dilute solution of oxymuriate of mercury, with a mixture of ox-gall. Hartmann's, which has also been in high estimation, consists of a simple distillation of arum-root in water. This forms a very pungent lotion, and its object is to dilute or wash out the brown pigment, by exciting an increased flow of perspirable fluid towards the surface, and to carry off a part of it by an

GEN. X. SPEC. IV. Epichrosis Ephelis. Sun-burn. Hence utility of spirits of lavender or other essential oils. Offensive alkalines formerly used.

increased action of the cutaneous absorbents. Spirit of lavender or any of the essential oils dissolved in alcohol, may be employed for the same purpose: and some have used a diluted eau de luce, which is also useful as an alkaline irritant. In Schroeder's Pharmacopœia there is a preparation for the same purpose, which we should little expect, and the virtues of which are not very likely to be tried in the present day: it is entitled aqua stercoris humani: but in former times dung of all kinds was a standard article in almost every Materia Medica, and there are few diseases for which it was not recommended by some practitioners; occasionally, indeed, internally as well as externally. The general intention was that of obtaining a very pungent volatile alkali; but this we are able to do at present by far less offensive means.

Fumes of sulphur.

When the hands are deeply discoloured they may often be bleached by exposing them to the fumes of sulphur.

Like miscolourations and spots in vegetable fruits.

In drupaceous fruits, and especially those of a fine cuticle, as apples, we sometimes meet with spots and miscolourations of the same character as moles, freckles, and sun-burn; the causes of which we do not always know, though we can sometimes trace them to small punctures in the cutis by birds and insects.

SPECIES V.

EPICHROSIS AURIGO.

Orange-Skin.

CUTICLE SAFFRON-COLOURED, WITHOUT APPARENT AFFECTION OF THE LIVER, OR ITS APPENDAGES; COLOUR DIFFUSED OVER THE ENTIRE SURFACE: TRANSIENT: CHIEFLY IN NEW-BORN INFANTS.

GEN. X. SPEC. V. Ordinary cause.

THIS orange hue of infants, and which is occasionally to be met with in later periods appears, as Dr. Cullen observes, to depend either on bile, not as in the usual man-

ner excreted, but received into the blood-vessels and effused under the cuticle, or on a peculiar yellowness of the serum of the blood distinct from any connexion with bile*. Sauvages has rightly distinguished between this disease, as a mere cutaneous affection, and proper jaundice. In him it occurs under the name of ephelis *lutea*, an improper name, however, as the affection is not an ephelis or sun-burn; while the jaundice of infancy he calls aurigo *neophytorum*, which ought rather to be icterus neophytorum†.

Gen. X. Spec. V. Epichrosis Aurigo. Orange-skin. The ephelis lutea of Sauvages; but improperly so called.

It may in general be remarked that while the sclerotic tunic of the eyes as well as the skin is tinged with yellow in the genuine jaundice of infants, the former retains its proper whiteness in aurigo. Whence the serum derives the yellow hue it so strikingly evinces on some occasions, except from the bile, it is difficult to determine. That a certain proportion of bile exists constantly in the blood in a healthy state is manifest, as we have already observed, from the colour of the urine, and the tinge given to linen by the matter of insensible perspiration: and that this proportion varies in different climates, and different seasons of the year, without producing genuine jaundice, we have observed also. And hence, infants under particular circumstances, may be subject to a like increase with a like absence of icteritious symptoms. But what those circumstances are, do not seem to be clearly known. We see nevertheless that whatever rouses the system generally, and the excretories peculiarly, readily takes off the saffron dye: and hence it often yields to a few brisk purges, and still more rapidly to an emetic.

Sclerotic tunic not discoloured in aurigo, but uniformly in jaundice.

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* Synops. Nosol. Med. Gen. xcl. 5.

† Nosolog. Method. in rebus.

SPECIES VI.

EPICHROSIS PŒCILIA.

Pye-balled Skin.

CUTICLE MARBLED GENERALLY, WITH ALTERNATE PLOTS OR PATCHES OF BLACK AND WHITE.

GEN. X. SPEC. VI. Origin of specific term.

PŒCILIA (ποικιλία) is a term of Isocrates, from ποικίλος, "versicolor" "pictus diversis coloribus"; whence *Pœcile* the porch or picture-gallery of the Stoics at Athens. The species is new to nosological classification; but the morbid affection has been long known to physiologists, and ought to have had a niche in the catalogue of diseases before now.

Chiefly found among negroes—and why.

This affection is chiefly found among negroes from an irregular secretion or distribution of the pigment which gives the black hue to the rete mucosum. In *Albinoes*, as we shall have occasion to observe presently, this pigment is entirely withheld, and the matter of the rete mucosum seems to be otherwise affected; in the species before us it is only irregularly or interruptedly distributed.

Physiologically examined. Beautiful effect produced by an interrupted and diversified distribution of the colouring matter of the rete mucosum in animals and plants. Illustrated.

What the cause of this interrupted distribution consists in, we know not; but in several of the preceding species of the present genus, and particularly in moles and freckles, we perceive a striking tendency to such an effect; and if we turn our attention to the animal and vegetable world around us, we shall observe it springing before us in a thousand different ways, and giving rise to an infinite diversity of the nicest and most elegant cutaneous tapestry. It is in truth, as the author has already remarked in the volume of Nosology, to the partial secretion or distribution of this natural pigment that we are indebted for all the variegated and beautiful hues

evinced by different kinds of animals and plants. It is this which gives us the fine red or violet that tinges the nose and hind-quarters of some baboons, and the exquisite silver that whitens the belly of the dolphin, and other cetaceous fishes. In the toes and tarsal membrane of ravens and turkeys, it is frequently black; in common hens and peacocks, gray: blue in the titmouse, green in the water hen, yellow in the eagle, orange in the stork, and red in some species of the scolopax. It affords that sprightly intermixture of colours which besprinkle the skin of the frog and salamander. But it is for the gay and glittering scales of fishes, the splendid metallic shells of beetles, the gaudy eye-spots that bedrop the wings of the butter-fly, and the infinitely diversified hues of the flower-garden that nature reserves the utmost force of this ever-varying pigment, and sports with it in her happiest caprices.

GEN. X. SPEC. VI. Epichrosis Pœcilia. Pye-balled skin.

While I am writing, says Dr. Swediaur, I have before me a friend who, after residing abroad for many years, at first in the East Indies, and then in the West, returned to Europe with a skin variegated with white spots like those of a tiger. In other respects he is well *.

In a European.

In some cases, a diversified colour of the skin appears to be hereditary among mankind. Blumenbach gives an example of a Tartar tribe, whose skin was generally spotted like the leopard's †. Individuals thus motley coloured are commonly called pye-balled negroes, or are said to have pye-balled skins.

A diversified colour sometimes hereditary.

Pye-balled negroes.

The Medico-Physical Society of New York, has lately published a case communicated by Dr. Emery Bissel, in which a man of the Brotherton tribe of Indians, ninety years of age, had been gradually becoming white for the last thirty years of his life. The first appearance of this change was a small white patch near the pit of the stomach, soon after an attack of acute rheumatism; which was shortly accompanied with other white spots in the vicinity that enlarged and at length intermixed. And

The black pigment sometimes gradually carried off, and a black man becomes a white. Exemplified.

* Nov. Nosol. Meth. Syst. Vol. II. p. 204.

† De Generis Hum. Varietate Nativâ.

GEN. X. SPEC. VI. Epichrosis Pœcilia. Pye-balled skin.

the spread of the white hue continuing to range over the whole body, the original colour was only visible, at the time of writing, on the forehead, and fore-part of the face and neck, with a few small patches on the arm. The skin, as it became white, was of a fine clear tint, and had nothing of the dull earthy appearance, or the livid hue observed in albinoes. Whence it should seem that not merely the black or dark-coloured pigment had been absorbed and carried off, but that a fair, whitish, and glossy rete mucosum, like that secreted under the cuticle in white men, had taken its place *.

Hence a white pigment secreted as well as a black removed.

Such a total change sometimes sudden. Exemplified.

This extraordinary change, however, is sometimes produced far more rapidly: for in the American States a black man has in a few instances had the whole of the colouring pigment carried off in the course of a severe fever, and has risen from his bed completely transformed into a white man. And in the famous American trial of Alexander Whistelo, the supposed father of a white bastard child, a variety of cases are given of a like kind, the black pigment being in some of them more generally removed and in others less so†. Büchner, on the contrary, relates the case of a white man who, on recovery from a like disorder, had his face tinged with a black hue, doubtless from a morbid secretion of a pigment the skin had never before elaborated.

Sometimes a white man changes in the face to a black.

Diffusive tawny hue from nitrate of silver.

A course of nitrate of silver, continued internally for some weeks, has often produced a deep tawny and uniform discolouration of the skin approaching to a black, being deepest in the parts most exposed to the light. Fourcroy, Butini, Alberti, Reimarus, and many other writers, have given cases of this change; and Dr. Roget has lately published another instance in the Transactions of the Medico-Chirurgical Society, in which the discolouration preserved its intensity of hue six years after a discontinuance of the medicine, the general health not being interfered with‡. In some instances the upper half of the

Sometimes continues for years.

* Journ. of Science and Arts, No. XII. p. 379.

† The Commissioners of the Alms-House versus Alexander Whistelo, &c. New York. 8vo 1808.

‡ Vol. VII. p. 290.

body only has been discoloured, and, more rarely, the pigment has appeared, like that of pye-balled negroes, in patches. Vesper relates the case of an old man afflicted with hemiplegia who presented the singular phenomenon of one half the body, that which was paralysed, completely yellow, while the other retained its natural colour: the distinction prevailed so accurately in the face that the two hues ran through the nose and were only separated by an imaginary line. Jaundice, however, was the cause in this instance *.

GEN. X. SPEC. VI. Epichrosis Pœcilia. Pye-balled skin.

Singular example from jaundice.

Plenck asserts that he once saw a man with a green face, the right side of his body black, and the left yellow, produced by a previous disease: and Dr. Bateman informs us, "that, subsequent to the period of his publication, Dr. Willan had observed a variety of pityriasis in children born in India and brought to this country, which commenced in a partially papulated state of the skin, and terminated in a black discolouration with slightly furfuraceous exfoliations. It sometimes affected half a limb, as the arm or leg; sometimes the fingers or toes." †

Singular example of a green face with body part black, part yellow.

SPECIES VII.

EPICHROSIS ALPHOSIS.

Albino-skin.

CUTICLE DULL WHITE: PUPILS ROSY: SIGHT WEAK, AND STRONGEST IN THE SHADE.

THIS species occurs not among negroes only, as commonly supposed, but among the inhabitants of Europe as well, and affords us the two following varieties:

GEN. X. SPEC. VII. Species common to blacks and whites.

α Æthiopica. Hair white and woolly: irids

* Dict. des Sciénces Medicales, Art. Cas. Rares.

† Cutaneous Diseases, p. 48.

Gen. X. Spec. VII. Epichrosis Alphosis. Albino-skin.

	Negro albino.	white. Found among negroes.
β	Europea. European albino.	Hair flaxen and silky. Found among Europeans and other white nations.

α E. Alphosis Æthiopica. Negro albino.

The FIRST of these varieties is by far the most striking, on account of the greater change in the colour of the skin, and the peculiar contrast it forms with the general cast of the negro-features.

Term albino whence derived. History of the disease.

The name of albino was first employed by the Portuguese, and applied to such Moors as were born white, or rather who continued so from the time of birth, for the children of negroes have little discolouration on birth, nor for several weeks afterwards*, and who, on account of this morbid hue, were regarded as monsters: and the term has since passed into our own and most other languages of the world. In these persons, however, there were other peculiarities observed besides the hue of the skin, for their hair, in all its natural regions, was equally white, the iris of the eyes white, and the pupil rose-coloured. This whiteness of the surface, however, is not the clear and glossy tint of the uncoloured parts of the European frame in a healthy state, but of a dead or pallid cast, something like that of leprous scales. The eyes, in consequence of the deficiency of their natural pigment, are so weak that the individuals can hardly see any object in the day, or bear the rays of the sun; though under the milder light of the moon, they see with great accuracy, and run through the deepest shades of their forests with as much ease and activity as other persons do in the brightest day-light. They are also said to be less robust than other men; and to sleep through the day and go abroad at night: both which last facts are easily accounted for, from the weakness of their sight, and the discomfort of the sun-beams to their eyes.

Whiteness of a dead or pallid cast. Individuals in some degree less robust than others.

It was at one time a subject of inquiry whether these

* See Whistelo's Trial as referred to in p. 702.

persons were a distinct variety of the human race, or merely instances of an occasional aberration from the ordinary laws that govern the human fabric: and the former opinion derived some support from its being found that male and female albinoes, who not unfrequently intermarried, being rejected by the rest of the world, produced an offspring with the same imperfections as their own.

GEN. X. SPEC. VII. α E. Alphosis Æthiopica. Negro albino. At one time doubted whether albinoes were not a distinct variety of man.

The question, however, has long been sufficiently set at rest, since albino children have been found produced in most parts of the world, and from parents of all tribes and colours, black and olive-hued, and red and tawny: and, since the subject has been more closely attended to, from white parents or inhabitants of Europe, as well as black or copper-coloured Africans. Nor does the anomaly appear confined to recent times, for Pliny seems distinctly to allude to it in the following passage as existing in his day. In Albaniâ gigni quosdam *glaucâ* oculorum *acie*, *à pueritiâ* statim *canos*, qui *noctû plusquam interdiu cernant**.

This question long since set at rest.

Albino described by Pliny.

It is the appearance of the characteristic albino-signs in European children, that constitutes the SECOND of the two varieties before us. These signs are a dull or unglossy white diffused over the body, with white or flaxen hair, white irids and red pupils. The disease is rare, but we have had at least eleven examples described by different authorities to the present time. Two by De Saussure, four by Buzzi, one by Helvetius, one by Maupertius, and three by Dr. Traill. It is singular that all these are males; and still more so that the female offspring of the same families were, without an exception, destitute of the albino degeneracy. The three described by Dr. Traill were part of a family of six, the daughters of which were in every respect unaffected. How far this disorder is in Europe capable of being produced hereditarily as abroad is not known; nor, indeed, does there yet appear to have been an opportunity of forming an

β E. Alphosis Europea. European albino. This variety rare: but described by various authorities:

all the examples males.

* Nat. Hist. Lib. VII. Cap. 2.

Gen. X. Spec. VII. β E. Alphosis Europea. European albino.

intermarriage between a male and a female of this kind, as not a single female has yet been discovered possessing the imperfective formation.

Constitution delicate.

The same delicacy of constitution that distinguishes the foreign or negro albino, distinguishes the European, of which we may form an estimate from Dr. Traill's account of one of the three we have already alluded to.

Singular and striking description from Traill.

"The oldest of these albinoes", says he, "is nine years of age, of a delicate constitution, slender, but well formed both in person and in features: his appetite has always been bad; he frequently complains of a dull pain in his forehead: his skin is exceedingly fair; his hair flaxen and soft; his cheeks have very little of the rose in them. The iris and *pupil* of his eyes are of a bright-red colour, reflecting in some situations an opaline tinge. He cannot endure the strong light of the sun. When desired to look up, his eye-lids are in constant motion, and he is incapable of fixing his eye steadily on any object, as is observed in those labouring under some kinds of slight ophthalmia, but in him is unaccompanied by tears. His mother says that his tears never flow in the coldest weather, but when vexed they are shed abundantly. He goes to school, but generally retires to the darkest part of it to read his lesson.—His disposition is very gentle; he is not deficient in intellect. His whole appearance is so remarkable that some years ago a person attempted to steal him, and would have succeeded in dragging him away, had not his cries brought him assistance."*

Pathological explanation.

The disease consists altogether in a defective secretion of the rete mucosum; which is not only without the colouring constituent principles that naturally belong to it, and particularly its power of affording a black pigment, but seems to be also untempered or imperfectly elaborated in other respects, judging from the dullness or deadness of the white hue it gives to the surface of the body, instead of the life and glossiness it diffuses in a state of

* Nicholson's Journ. Nat. Phil. Feb. 1806.

perfect health. That this cutaneous layer is not altogether wanting is clear, since in such case the red vascularity of the cutis would be conspicuous through the delicate transparent cuticle, in albinoes peculiarly delicate, and tinge the surface with a red instead of a white colour.

Hence probably the delicacy or characteristic feebleness of the frame: and unquestionably the hue of the hair and irids: as also the red colour of the pupils: first conjectured by Blumenbach, since ascertained by Buzzi.

It is to this imperfection in the secretion or elaboration of the rete mucosum that the delicacy or feebleness of the general frame is in all probability to be ascribed, though we may be at some loss in determining how such an effect is produced by such a cause. That the flaxen hue of the hair and the whiteness of the irids is derived from the same source, admits, however, of no doubt, and the opinion long ago expressed by Professor Blumenbach *, that the red colour of the pupils in the two adult albinoes whom he had examined at Chamouni, was equally owing to the want of the usual black pigment, has since been confirmed by M. Buzzi of Milan, who has had an opportunity of dissecting an albino, and has proved that the pigmentum nigrum of the choroid coat, and also that portion of it which lies behind the iris, and is called uvea, were totally wanting †.

Other animals affected with albino hue as well as man.

We have observed under the preceding species, that other animals are as richly supplied with a rete mucosum as mankind, and that they are indebted to it for their respective colours: and as there can be no reason why they may not at times endure a like deficiency, we have reason to expect à priori that they may occasionally exhibit proofs of the same complaint. In accordance with this reasoning, M. Blumenbach has traced this affection in many tribes, and especially in white dogs, owls, and rabbits: and Dr. Traill has lately observed a case of the same disease in a young sparrow which he accidentally shot. This seems to have been a perfect albino, with red eyes, pale reddish beak and neck, snow-white plumage, of a satin gloss on the head, neck, wing-coverts, and back.

Exemplified in dogs, owls, and rabbits. In a sparrow.

* Med. Bibl. II. 537.

† Dissertazione storico-anatomica sopra una varietà particolare de nomini bianchi, &c. Milan, 1784.—Le Cat, Traité de la Couleur de la Peau humaine.

Gen. X. Spec. VII. β E. Alphosis Europea. European albino.

The nest from which it issued contained another young sparrow of the common colour; and when the albino-bird quitted the nest, which it was seen to do a few days before it was shot, it was instantly attacked by fifty or sixty common swallows, and obliged to take refuge in a tree*.

* Edin. Phil. Journ. No. IV. p. 390.

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THE END.

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